ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

RFCA Standard Operating Protocol for Asphalt and Soil Management

Revision 0

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TABLE OF CONTENTS

List of Figure and Tables

Acronyms

AHA	Activity Hazard Analysis
ALF	Action Level Framework
AR	Administrative Record
ARARs	Applicable or Relevant and Appropriate Requirements
BZ	Buffer Zone
CAD/ROD	Corrective Action Decision/Record of Decision
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CID	Cumulative Impacts Document
D&D	decontamination and decommissioning
DOE	United States Department of Energy
DOT	United States Department of Transportation
EDE	effective dose equivalent
ER	Environmental Restoration
ESS	Environmental Systems and Stewardship
HASP	Health and Safety Plan
HRR	Historical Release Report
IA	Industrial Area
IDM	Investigative Derived Material
IHSS	Individual Hazardous Substance Site
IMP	Integrated Monitoring Plan
IWCP	Integrated Work Control Process
K-H	Kaiser-Hill Company
LDR	Land Disposal Restrictions
LLW/LLMW	Low-Level Waste/Low-Level Mixed Waste
NEPA	National Environmental Policy Act
NFA	No Further Action
NPDES	National Pollutant Discharge Elimination System
OU	Operable Unit
PAC	Potential Area of Concern
PCOC	Potential Contaminant of Concern
PM_{10}	particulate matter less than ten microns in size
PPE	personal protective equipment
PPRG	Programmatic Preliminary Remediation Goal
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RISS	Remediation, Industrial D&D, and Site Services
RSOP	RFCA Standard Operating Protocol
RWP	Radiation Work Permit
SME	Subject Matter Expert
TSCA	Toxic Substance Control Act
UBC	Under Building Contamination
VOA	Volatile Organic Analysis
WAC	Waste Acceptance Criteria

EXECUTIVE SUMMARY

As part of the Rocky Flats Environmental Technology Site (RFETS) closure activities, asphalt and soil will be disturbed for various reasons, such as investigational drilling; excess sample material; well and borehole sampling and installation; construction and maintenance activities, including cleaning of ditches and culverts, utility line repairs, power pole replacements, etc. To date the management and disposition of asphalt and soil from these activities has been addressed under various regulatory and procedural requirements that are not consistent or efficient and often result in unnecessary waste generation.

The purpose of this Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) is to streamline in a single decision document, a compliant and environmentally protective routine approach for managing and temporarily replacing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. In addition to newly generated material, asphalt and soil disturbed prior to the approval of this RSOP may be evaluated for management and replacement in accordance with this RSOP. This RSOP does not replace accelerated action decision documents required to perform Resource Conservation and Recovery Act (RCRA) corrective actions, environmental restoration (ER) or decontamination and decommissioning (D&D) projects. In addition, this RSOP does not establish a central area or areas for stockpiling or storage of regulated asphalt or soil at RFETS, however, it does provide for the use of staging piles for soils exceeding Tier I, in accordance with the Applicable, Relevant, and Appropriate Requirements (ARARs).

To assure compliant and environmentally responsible management of soils and asphalt, the internal soil disturbance review process will continue for all asphalt and soil disturbance activities at RFETS. The Site-approved soil disturbance review program provides an appropriate level of Subject Matter Expert (SME) review, evaluation, and identification of sampling, characterization, health and safety, environmental, or ecological requirements and radiological controls required for each specific asphalt or soil disturbance at RFETS.

In each management and disposition option outlined above, the soil disturbance review process must result in a determination that there is no significant net environmental impact to surface water or ecological resources from the proposed relocation or put-back of the disturbed asphalt or soil. Specific criteria that will be followed in evaluating soil relocation decisions are:

1. Is the excavation and proposed relocation area within or near an IHSS(s), PAC(s), UBC or other area of environmental concern within the same OU as defined in the Historical Release Report (HRR) Site?
2. What is the status and schedule of the HRR Site, i.e., proposed NFA, accepted NFA, near-term NFA candidate, scheduled for remediation?
3. After thorough review, are contaminant types and concentrations compatible for a relocation?
4. Is there a potential impact to air or surface water runoff?
5. Is there an impact to ecological resources and erosion controls?
6. Would relocation be economically justified, i.e., how much soil is involved in the relocation?

All asphalt and soil covered by this RSOP will be managed and placed according to the following:

CONTAMINANT CONCENTRATIONS	SOIL	ASPHALT[1]
A. At or below Background or regulatory levels[2].	Soils may be released in an unrestricted manner.	Asphalt may be released in an unrestricted manner.
B. Below RFCA Tier II subsurface soil action levels for radionuclides and non-radionuclide chemicals.	Soils may be placed anywhere within the same Operable Unit (OU)[3] as long as the area contains a similar chemical and/or isotopic profile, and surface water quality and ecological resources are not impacted.	Asphalt may be placed anywhere within the same OU[3] as long as the area contains a similar chemical and/or isotopic profile, and surface water quality and ecological resources are not impacted
C. Between RFCA Tier I and Tier II subsurface soil action levels for radionuclides and non-radionuclide chemicals.	Soil may be placed: (1) within the excavation site from which it was excavated; (2) into the same Individual Hazard Substance Site (IHSS), Potential Area of Concern (PAC), or Under Building Contamination (UBC) from which it was excavated; (3) into a different IHSS, PAC, or UBC within the same OU that contains soil with similar concentrations of the same type of constituents and surface water quality and ecological resources are not impacted, [4] or (4) placed into a container and actively managed in accordance with the Applicable Relevant or Appropriate Requirements (ARARs).	Asphalt may be placed: (1) within the excavation site from which it was excavated; (2) into the same IHSS, PAC, or UBC from which it was excavated; (3) into a different IHSS, PAC, or UBC within the same OU that contains asphalt or soil with similar concentrations of the same type of constituents and surface water quality and ecological resources are not impacted, [4] or (4) placed into a container and actively managed in accordance with the ARARs.
D. Above RFCA Tier I subsurface soil action levels for radionuclides or non-radionuclide chemicals	Soil may be returned to the excavation or disturbance site from which it originated to be evaluated during future ER activities in accordance with the staging pile ARARs or placed into a container and actively managed.	Asphalt will be placed into a container and actively managed in accordance with the ARARs.

FOOTNOTES:

[1] Asphalt may only be used as fill material and may not be placed at the surface.

[2] As identified in the Background Geochemical Characterization Report (Tables D-16 and D-17), EG&G, 1993, 6 CCR 1007-3, 261 and Toxic Substance Control Act (TSCA) 40 CFR 761. (Background is the mean plus 2 standard deviations for the upper flow system)

[3] An OU is defined in RFCA as a grouping of Individual Hazardous Substance Sites (IHSSs) into a single management unit.

[4] Asphalt or soil will not be moved to a different IHSS, PAC, or UBC that has been proposed for No Further Action (NFA). If asphalt or soil are placed into a different IHSS, PAC, or UBC within the same OU that contains asphalt or soil with similar concentrations of the same type of constituents, the IHSS, PAC, or UBC will be evaluated during future ER activities to determine what action is needed, if any.

Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA land disposal restrictions (LDRs). When asphalt or soil are containerized and actively managed for offsite disposition, then the substantive RCRA LDRs are triggered.

The RFCA Parties and Stakeholders are aware that the radionuclide soil action levels are under review and may change in the future. If the radionuclide soil action levels change, this document will be reviewed and modified, as appropriate.

DEFINITIONS

Action Levels. Action levels are numeric levels that, when exceeded, trigger an evaluation, remedial action and/or management action. Action levels are intended to be protective of: human exposure, surface water quality via runoff and ecological resources.

Activity Hazard Analysis. (AHA) An analysis of procedurally controlled activities that uses developed procedures as a guide to address and consider the hazards due to any exposures present during implementation of (activity) procedures, the use and possible misuse of tools and other support equipment required by the procedures. A type of hazard analysis process which breaks down a job or activity into steps, examines each step to determine what hazard(s) exist or might occur, and establishes actions to eliminate or control the hazard.

Buffer Zone. (BZ) means that area of RFETS generally described as the roughly 6000 acres unoccupied by buildings or development that surrounds the Industrial Area at the geographic center of RFETS and extends to its borders.

Comprehensive Environmental Response, Compensation, and Liability Act. (CERCLA) 42 U.S.C. § 9601 et seq., as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), Pub. L. 99-499, and the Community Environmental Response Facilitation Act (CERFA), Pub. L. No.102-26; and the National Contingency Plan and other implementing regulations.

Colorado Hazardous Waste Act. (CHWA) means sections 25-15-101 et seq., C.R.S. (1982 & Supp.) as amended, and its implementing regulations.

Corrective Action. Means the RCRA/CHWA term for the cleaning up of releases of hazardous waste or hazardous constituents.

Cumulative Impacts Document. (CID) A summary document describing postulated Site accident scenario frequencies, source terms (environmental releases), and Site-wide impacts.

Hazardous Waste. Any solid waste that either exhibits a hazardous characteristic (i.e., corrosivity, ignitability, reactivity, or toxicity) or is named on one of three lists published by EPA in 40 CFR 261, Identification and Listing of Hazardous Waste. To be considered a hazardous, a waste must first meet EPA's definition of "solid waste", which includes liquids.

Historical Release Report. (HRR) means that report required by CERCLA § 103 (c) describing the known, suspected or likely releases of hazardous substances from RFETS.

Investigation Derived Material. (IDM) is potentially contaminated environmental media such as soil, sediment, surface or groundwater.

Individual Hazardous Substance Site. (IHSS) means specific locations where solid wastes, hazardous substances, pollutants, contaminants, hazardous wastes, or hazardous constituents may have been disposed or released to the environment within the Site at any time, irrespective of whether the location was intended for the management of these materials.

Industrial Area. (IA) means that area of RFETS generally described as the roughly 350 acres at the geographic center of RFETS which is occupied by the 400 buildings, other structures, roads and utilities where the bulk of RFETS mission activities occurred between 1951 and 1989.

Low-Level Waste. Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel. At the Site this is radioactive waste less than or equal to 100 nCi of alpha-emitting transuranics per gram of waste matrix or contaminated with uranium.

Low-Level Mixed Waste. Radioactive wastes exhibiting less than or equal to 100 nCi of alpha-emitting transuranics per gram of waste matrix or contains uranium contamination and exhibits a RCRA characteristic or is mixed with or contains a RCRA listed waste, or is derived from the treatment or storage of a RCRA hazardous waste.

No Further Action. (NFA) means the determination that remedial actions (or further remedial actions) are not presently warranted; however, NFA decisions are subject to revisitation at the time of the CAD/ROD in accordance with RFCA Attachment 6, and are subject to paragraph 238 (Reservation of Rights) and to CERCLA § 121 (c) mandate for a five-year review of remedial actions that result in hazardous substances, pollutants, or contaminants remaining at the Site.

Operable Unit. (OU) means a grouping of IHSSs into a single management unit. RFCA has designated two Operable Units at the Site, the Industrial Area and Buffer Zone.

Process Knowledge. Knowledge of the material used in a given operations or activity that provides information for characterization of waste from that process.

Potential Area of Concern. (PAC) An RFETS site of potential release or spill (including IHSSs) designated by the HRR and assigned a unique release number based upon its geographic location, and its status as an existing IHSS.

Remediation Waste. Means all solid and hazardous wastes, and all media (including soil and asphalt) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup per 40 CFR §260.10.

Resource Conservation and Recovery Act. (RCRA) 42 U.S.C. § 6901 et. seq., as amended by the Hazardous and Solid Waste Amendments of 1984, the Federal Facility Compliance Act of 1992, and implementing regulations.

RFCA Standard Operating Protocol. (RSOP) means approved protocols applicable to a set of routine environmental remediation and/or decommissioning activities regulated under RFCA that

DOE may repeat without re-obtaining approval after the initial approval because of the substantially similar nature of the work to be done. Initial approval of an RSOP will be accomplished through an IM/IRA process.

Staging Pile. As defined in 6CCR 1007-3, §264.554, an accumulation of solid non-flowing remediation waste (as defined in 40 CFR § 260.10) that is not a containment building and is used only during remedial operations for temporary storage at a facility. Staging piles only apply to soils which exceed Tier I and are designated by the State.

Stockpile. The temporary short-term storage of asphalt/soil in a managed pile (e.g., covered with tarps) above grade, until analytical results and/or final characterization and disposition is determined.

Under Building Contamination. (UBC) Potential site of release involving soil and/or groundwater beneath an identified building and its foundation. UBC sites are identified within the HRR.

1. INTRODUCTION

1.1 PURPOSE

As part of Site closure activities, asphalt and soil will be disturbed at the Rocky Flats Environmental Technology Site (RFETS or Rocky Flats) for various reasons, such as investigational drilling; excess sample material; well and borehole sampling and installation; construction and maintenance activities, including cleaning of ditches and culverts, utility line repairs, power pole replacements, etc. To date the management and disposition of asphalt and soil from these activities has been addressed under various regulatory and procedural requirements that are neither consistent nor efficient and often result in unnecessary waste generation. Asphalt and soil disturbed prior to the approval of this document, and awaiting disposition may be evaluated for management and disposition in accordance with the approved RSOP.

The purpose of this RSOP is to streamline in a single decision document a consistent, compliant and environmentally protective approach for managing asphalt and soil at Rocky Flats that requires disturbance prior to final cleanup decisions.

This RSOP does not replace accelerated action decision documents required to perform RCRA corrective actions, ER or D&D projects. In addition, this RSOP does not establish a central area or areas for stockpiling or storage of regulated asphalt or soil at RFETS. Accelerated action decision documents for specific remedial actions impacting asphalt and soil are addressed in separate accelerated action decision document(s), as appropriate. For example, asphalt and soil disturbed during the 903 Pad remediation will be addressed in either the Soil Remediation RSOP or a 903 Pad Interim Measure/Interim Remedial Action, as appropriate.

Example of How this RSOP May be Used:
Scenario: A buried utility line breaks and maintenance is required to repair the break. The break occurred in or near a known IHSS and soil needs to be excavated to allow access to the line. How should the soil be managed?

Under the current process the soil would have to be characterized, managed and dispositioned on a case-by-case basis utilizing analytical data, historical information and process knowledge. If the soil did not exhibit a characteristic of RCRA hazardous waste or contain a RCRA hazardous constituent, it could be placed back in the excavation. Soil not meeting this criteria would be containerized and require active management.

Under this RSOP, a couple of options exist. First, the soil could be placed next to the excavation in a stockpile while existing data is reviewed or sampling is performed. The results would then be compared to the management options hierarchy, described in Section 2.2. Under this scenario, all of the soil could be returned immediately to the initial excavation. If this is not practical, the soil could possibly be replaced elsewhere within the IHSS, PAC, or UBC within the same OU. Initially, a review of constituents would be performed to ensure the same constituents and similar concentrations are present. Based upon this evaluation, a soil relocation plan would be developed as described in Section 2.3,

identifying an acceptable receiving location, and provided to the project for execution.

The advantages of placing the soil back into the excavation under this RSOP is that it prevents the generation of unnecessarily contaminated material by introducing clean fill into a contaminated excavation. It also allows for quick backfill of the excavation mitigating health and safety concerns due to an open excavation. And finally, it allows contaminated areas to be addressed during environmental remediation activities, resulting in efficient utilization of resources and a cost-effective approach.

1.2 BACKGROUND

The management and disposition of asphalt and soils at RFETS has historically been conducted under various regulatory and procedural requirements. For example:

- The management and disposition of soils generated during Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) remediation activities are identified as accelerated actions and covered by project-specific decision documents as dictated by the RFCA. For soils with non-radionuclide chemical contamination, put-back levels are equivalent to a RFCA Tier I Industrial Use Action Level or a RFCA Tier I Open Space Use Action Level [unless some other Action Level Framework (ALF) provision prevents this]. Soils with radionuclide levels below RFCA Tier II levels may be replaced; soils containing radionuclide levels above Tier I may not be replaced. Decisions regarding soils containing radionuclide levels between Tier I and Tier II are determined on a case-by-case basis. ["Replaced" and "put-back" mean returned to the environment.]

- The management and disposition of Investigation Derived Material (IDM) at the RFETS was historically controlled by two standard operating procedures: 4-F99-ENV-OPS-FO.23 (FO.23), *Management of Soil and Sediment Investigation-Derived Materials*, and 4-F46-ENV-OPS-FO.29 (FO.29) *Disposition of Soil and Sediment Investigation-Derived Materials*. IDM consists of environmental media generated during Environmental Investigation Programs. Environmental media are naturally occurring material indigenous to the environment including groundwater, surface water, surface and subsurface soils, rocks, bedrock, and gravel. Examples of commonly occurring IDM include excess sample material, drill cuttings, test pit spoils, and monitoring well purge water. IDM is generated during Site investigational drilling, well and borehole sampling and installation. In accordance with FO.23 and FO.29, the criteria for RCRA hazardous waste determinations for IDM soils constitute a "contained-in" determination as follows:

  1. Does the soil exhibit a characteristic of a RCRA hazardous waste?
  2. Do concentrations of listed constituents exceed residential scenario Programmatic Preliminary Remediation Goals (PPRGs) [10^{-6} risk]?
  3. Is the Hazard Index (sum of PPRG ratios) for the soil greater than 1?

Only IDM that does not exhibit a characteristic of a RCRA hazardous waste or contain RCRA hazardous waste may be returned to the environment. IDM that contains RCRA listed waste or exhibits a characteristic of a hazardous waste is managed on-site and dispositioned off-site as RCRA hazardous waste.

- Excavated soils from other sources, e.g., cleaning of ditches and culverts, construction and maintenance activities, and excess soils resulting from utility line repairs and power line pole replacements are not considered IDM and are not included within the scope of FO.23 or FO.29. These non-IDM soils are characterized, managed and dispositioned on a case by-case basis utilizing process knowledge, analytical data, and historical information. The non-IDM hazardous waste determinations for soils from these projects are based upon:

  1. Does the soil exhibit a characteristic of a RCRA hazardous waste?
  2. Does the soil contain a RCRA hazardous constituent?

  Only soil that does not exhibit a characteristic of a RCRA hazardous waste or contain RCRA hazardous waste may be returned to the environment. Soil that contains RCRA listed waste or exhibits a characteristic of a hazardous waste is managed on-site and dispositioned off-site as RCRA hazardous waste.

- The excavation, management and disposition of asphalt at the RFETS has been controlled on a project specific, case-by-case basis, similar to soils. Asphalt work at the RFETS is primarily due to construction, and maintenance activities. Asphalt is a cementitious material composed of aggregate, binders, and petroleum products, used for road paving, parking lots, equipment pads, and road coatings/sealants. Currently, based upon history, process knowledge, and radiological surveys, asphalt may be dispositioned off-site at appropriate facilities, or recycled for reuse at the RFETS.

1.3 PROPOSED ACTION

The proposed action will create a streamlined and consistent approach to temporarily replace disturbed asphalt or soil at RFETS prior to final cleanup decisions using a comparison to RFCA subsurface soil action levels. The comparison will be based on available historical information, including previous analytical data and/or process knowledge, or new data (when necessary). The applicable soil action level(s) presented in RFCA Table 5, Attachment 5 will be utilized. If RFCA soil action levels are revised or modified, this RSOP will utilize the most current and applicable soil action levels.

2. TECHNICAL APPROACH

This RSOP will be applied in conjunction with the work planning reviews that are normally applicable to any new or modified process or project at RFETS. Project authorization and reviews are initiated through the Integrated Work Control Process (IWCP) and the preparation of an Environmental Checklist and the Soil Disturbance Review Process. Specifically, requirements related to asphalt and soil

disturbance such as those having to do with excavation, airborne and waterborne contaminants, and regulated emissions from equipment usage are addressed during the planning phase of the activities within the scope of the RSOP.

2.1 SOIL DISTURBANCE REVIEW PROCESS

To assure compliant and environmentally responsible management of soils and asphalt, the internal soil disturbance review process will continue for all asphalt and soil disturbance and excavation activities at the RFETS. For purposes of this RSOP, soil disturbance is defined as, *"Moving of soil by any means (e.g. shovels, rakes, posts, motorized equipment, etc.). The installation or driving of posts, steel rods, or wooden stakes is also considered disturbing the soil/asphalt with the exception of survey stakes used by land surveying crews."* Whereas excavation, as defined by 29 CFR Part 1926, Subpart P of the *Occupational Safety and Health Standards for the Construction Industry, "means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal."* The Site-approved soil disturbance review program ensures an appropriate level of SME review and evaluation to assure the necessary levels of sampling/characterization, health and safety, environmental, ecological, and radiological controls are identified for each specific asphalt/soil disturbance.

In addition, in accordance with the site IWCP process, an Environmental Checklist may also be needed. An Environmental Checklist describes the proposed work, and is reviewed by SMEs to ensure that appropriate environmental reviews and controls are considered prior to the beginning of work activities. The review includes RFCA, RCRA, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and TSCA issues, ecological concerns, groundwater, surface water, air quality, pollution prevention, and the National Environmental Policy Act (NEPA). The review provides a written statement to the project that identifies required and suggested environmental compliance actions.

In all cases, the disposition of disturbed or excavated asphalt and soil must be protective of human health and the environment, and is based upon the principle that the asphalt or soil disturbance and replacement is to be performed in a manner that causes no significant net environmental impact. An example illustrating this principle can be drawn from a scenario in which soil is to be moved from one contaminated area to another of equal contamination. While such movement is allowed in principle under this RSOP, the receiving site should not be in an area that has significant erosion potential from wind or precipitation, or one with potential to directly impact a surface water conveyance, wetland or wildlife habitat area. [See Section 2.3 for Evaluation Criteria for movement of asphalt and soil]

2.2 ASPHALT AND SOIL MANAGEMENT DECISION

For the purposes of this RSOP, RFETS land use assumptions will be as described in RFCA Attachment 5 (Figure 1, RFETS Conceptual Land Uses). The specific mechanisms to ensure the implementation and continuity of the necessary institutional controls have not been included in this RSOP. These mechanisms will be identified and implemented through the Final Site Corrective Action Decision/Record of Decision (CAD/ROD).

Asphalt and soil management options are based upon a two-step process: (1) a hazardous constituent

analysis and (2) a radionuclide analysis. Each disturbance location will undergo an analysis using available process knowledge, analytical data, and historical information. If sufficient process knowledge or data are unavailable, sampling may be required. When needed, sampling will be conducted in accordance with the IA or BZ Sampling and Analysis Plan, as appropriate. Additionally, in accordance with the Site IWCP process, and Environmental Checklist may be required. It is not the intent of this RSOP to establish a central area or areas for stockpiling or storage of regulated asphalt or soil at the RFETS. If short-term management of asphalt or soil is necessary the asphalt or soil must be managed with caution, and in accordance with Best Management Practices (e.g., placed onto plastic, and covered). Management options are shown in Figure A, *Asphalt/Soil Management Decision Process*, and described as follows:

(1) Hazardous Constituent Analysis:

A. If hazardous constituent concentrations are at or below background or regulatory levels (identified in the Background Geochemical Characterization Report, EG&G, 1993, 6 CCR 1007-3, 261, and TSCA 40 CFR 761):

- The soil may be evaluated for release in an unrestricted manner; or
- The asphalt may be evaluated for release in an unrestricted manner for recycling as fill material, construction of berms, or for off-site management, including recycle, or disposal at a sanitary landfill.

Note: Asphalt disturbances at Rocky Flats will be evaluated based solely upon process and historical knowledge and/or characterization of the surrounding soils related to contamination from a previous spill or release onto or under the asphalt. Due to the nature and composition of asphalt, it is impractical to establish "background" levels for chemical, metal, or radionuclide constituents in the asphalt matrix itself.

B. If hazardous constituent concentrations are at or below RFCA Tier II levels:

- The soil may be placed anywhere within the same OU with similar chemical and isotopic profile, as approved through the soil disturbance review process; or

- The asphalt[1] may be used anywhere within the same OU with similar chemical and isotopic profile, as approved through the soil disturbance review process as fill material.

C. If hazardous constituent concentrations are above RFCA Tier II levels, but less than RFCA Tier I levels, the asphalt[1] and soil may be:

a. Placed within the OU as follows (listed in order of preference):

[1] Asphalt may only be used as fill material in these cases (less than Tier II [Case B], and greater than Tier II and less than Tier I [Case C]).

i. Into the excavation site from which it was excavated (at no time will asphalt or soil containing hazardous constituents exceeding Tier II be placed into an area with lesser contamination); or
ii. Into the IHSS, PAC or UBC from which it was excavated; or
iii. Into a different IHSS, PAC or UBC within the OU that contains asphalt/soil with similar concentrations of the same type of constituents as approved through the soil disturbance review process (unless this IHSS, PAC or UBC has been proposed as NFA) [See Section 2.3 for Evaluation Criteria for movement of asphalt and soils];

or

b. Placed into a container and actively managed in accordance with the ARARs.

D. If hazardous constituent concentrations are greater than or equal to RFCA Tier I levels:

a. The soil may be:
- Returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will evaluated during future ER activities; or

- Placed into a container and actively managed in accordance with the ARARs; or

b. The asphalt will be placed into a container and actively managed in accordance with the ARARs.

After the hazardous constituent concentration analysis is complete, a similar analysis must be completed for radionuclides. For radionuclides, the management options are as follows:

(2) Radionuclide Constituent Analysis:

A. If radionuclide concentrations are at or below background levels (identified in the Background Geochemical Characterization Report, EG&G, 1993):
- The soil may be evaluated for release in an unrestricted manner; or
- The asphalt may be evaluated for release in an unrestricted manner for recycling as fill material, construction of berms, or for off-site management, including recycle, or disposal at a sanitary landfill.

Note: Asphalt disturbances at Rocky Flats will be evaluated based solely upon process and historical knowledge related to contamination from a previous spill or release onto or under the asphalt. Due to the nature and composition of asphalt, it is impractical to establish "background" levels for chemical, metal, or

radionuclide constituents in the asphalt matrix itself.

B. If radionuclide concentrations are at or below RFCA Tier II levels:

- The soil may be placed anywhere within the Site in an area containing a similar isotopic profile; or

- The asphalt[1] may be placed as fill anywhere within the Site in an area containing a similar isotopic profile.

In both cases, the soil disturbance review process must determine that there is no impact to surface water or ecological resources from the proposed movement.

C. If radionuclide concentrations are above RFCA Tier II levels, but less than RFCA Tier I levels, the asphalt[1] and soil may be:

a. Placed within the OU (listed in order of preference):
   i. Into the excavation site from which it was excavated (at no time will asphalt or soil containing radionuclide constituents exceeding Tier II be placed into an area with lesser contamination); or
   ii. Into the IHSS, PAC or UBC from which it was excavated ; or
   iii. Into a different IHSS, PAC or UBC within the OU that contains asphalt/soil with similar concentrations of the same type of constituents as approved through the soil disturbance review process (unless this IHSS, PAC or UBC has been proposed as NFA) (See Section 2.3 for Evaluation Criteria for movement of asphalt and soils); or

b. Placed into a container and actively managed in accordance with the ARARs.

D. If radionuclide concentrations are equal to or above RFCA Tier I levels:

a. The soil may be:
   - Returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs (only if the soil also contains hazardous constituents above Tier I) and will be evaluated during future ER activities; or

   - Placed into a container and actively managed in accordance with the ARARs; or

[1] Asphalt may only be used as fill material in these cases (less than Tier II [Case B], and greater than Tier II and less than Tier I [Case C]).

b. The asphalt will be placed into a container and actively managed in accordance with the ARARs.

In each management and disposition option outlined above, the soil disturbance review process must determine that there is no significant environmental impact to surface water or ecological resources from the proposed replacement or put-back of asphalt or soil.

2.3 ASPHALT/SOIL MOVEMENT EVALUATION CRITERIA

Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA LDRs. Remediation waste means all solid and hazardous wastes, all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous waste characteristic and are managed for implementing cleanup. However, because much of the BZ OU and areas of the IA OU are believed to be uncontaminated, i.e., unimpacted by DOE activities (this will be verified via the characterization process), movement of asphalt and soil above Tier II action levels into uncontaminated areas will not be permitted. Soil may only be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile). Transfers will be identified in the HRR and updates thereto.

When asphalt and soil from an excavation cannot be returned to the excavation or immediate area, then a site-specific soil relocation plan will be required. The soil relocation plan will be based on an evaluation of six criteria and approved on a case by case basis. The following criteria, including groups and responsibilities involved in evaluating the criteria for soil relocation decisions are listed below:

Criteria:

- Is the excavation and proposed relocation area within or near an IHSS(s), PAC(s), UBC or other areas of environmental concern within the same OU as defined in the HRR (HRR Sites)?
- What is the status and schedule of the HRR Site, i.e., proposed NFA, accepted NFA, near-term NFA candidate, scheduled for remediation?
- After thorough review, are contaminant types and concentrations compatible for a relocation?
- Is there a potential to impact air or surface water runoff?
- Is there an impact to ecological resources and erosion controls?
- Would relocation be economically justified (i.e., how much soil is involved in the relocation)?

Groups and Responsibilities:

- HRR Coordinator – Determine and propose a potential receiving site based upon the assessment of analytical data gathered in performing the Hazardous Constituent Analysis. Specific analytical parameter suites [i.e., volatile organic analysis (VOAs), semi-VOA's, total metals, radionuclides or other potential contaminants of concern (PCOCs)] and concentrations of similar chemical compounds within each parameter suite from the excavation site will be compared to existing analytical data for sites that have been characterized. The proposed receiving site may be an IHSS, PAC, UBC or other area with sufficient analytical data provided that it is not an NFA

candidate or accepted as proposed. The HRR coordinator will document (in the appropriate HRR Update) all soil relocation activities where RFCA Tier II action levels are exceeded. This update will include soil volume, sending and receiving sites, and contaminant types.

- Environmental Systems & Stewardship (ESS) – Provide independent environmental compliance reviews and approvals. This review includes RCRA, CERCLA, TSCA, air quality, and ecological concerns.

- Radiological Engineering – Assist the HRR Coordinator and ESS in assessing the radiological data from the excavation site and the proposed soil relocation area. The radiological engineer will also assure that all activities are conducted in accordance with applicable Site radiological procedures and this RSOP.

- Remediation, Industrial D&D, and Site Services (RISS) Surface Water Group – Assures that the proposed relocation area complies with the Stormwater Pollution Prevention Plan and all erosion controls are in place.

- RISS Industrial Safety and Hygiene – Assures the relocation and replacement of the asphalt and soil is performed safely, and without impact to Site workers and public health.

When asphalt and soil from an excavation will be containerized and actively managed in accordance with the ARARs for offsite disposition, then the substantive RCRA LDRs are triggered.

2.4 SUMMARY

In some cases, analytical data or generator knowledge may be inadequate or unavailable for the disturbance site. In order to properly characterize the site, additional sampling may be required. In such cases, as directed by the soil disturbance review process, (a) samples may be taken as the excavation or disturbance proceeds, or (b) excavation or disturbance may be delayed until after sampling, and evaluation of analytical data.

For those management options that allowed for the replacement of excavated soils or asphalt within an OU, the storm water pollution prevention provisions of the Site's National Pollutant Discharge Elimination System (NPDES) permit apply. The asphalt and soil materials that are more rigorously managed, including covering, containerizing or storage in appropriate facilities, the management practices of the storage locations prevail. While the NPDES permit Storm Water Pollution Prevention requirements specifically do not apply to materials with radioactive contamination, the storm water monitoring provisions of the permit are incorporated in the RFCA Integrated Monitoring Plan (IMP). Storage practices for radionuclide contaminated materials will prevent radionuclide contamination of storm water. Asphalt and soil contaminated with regulated constituents, and/or radionuclides will not be utilized as fill in or underneath a deep basement, cap or cover. The asphalt and soil may be returned to an excavation as a short-term solution, and be removed and remediated at a future date in accordance with the appropriate ER/D&D schedule.

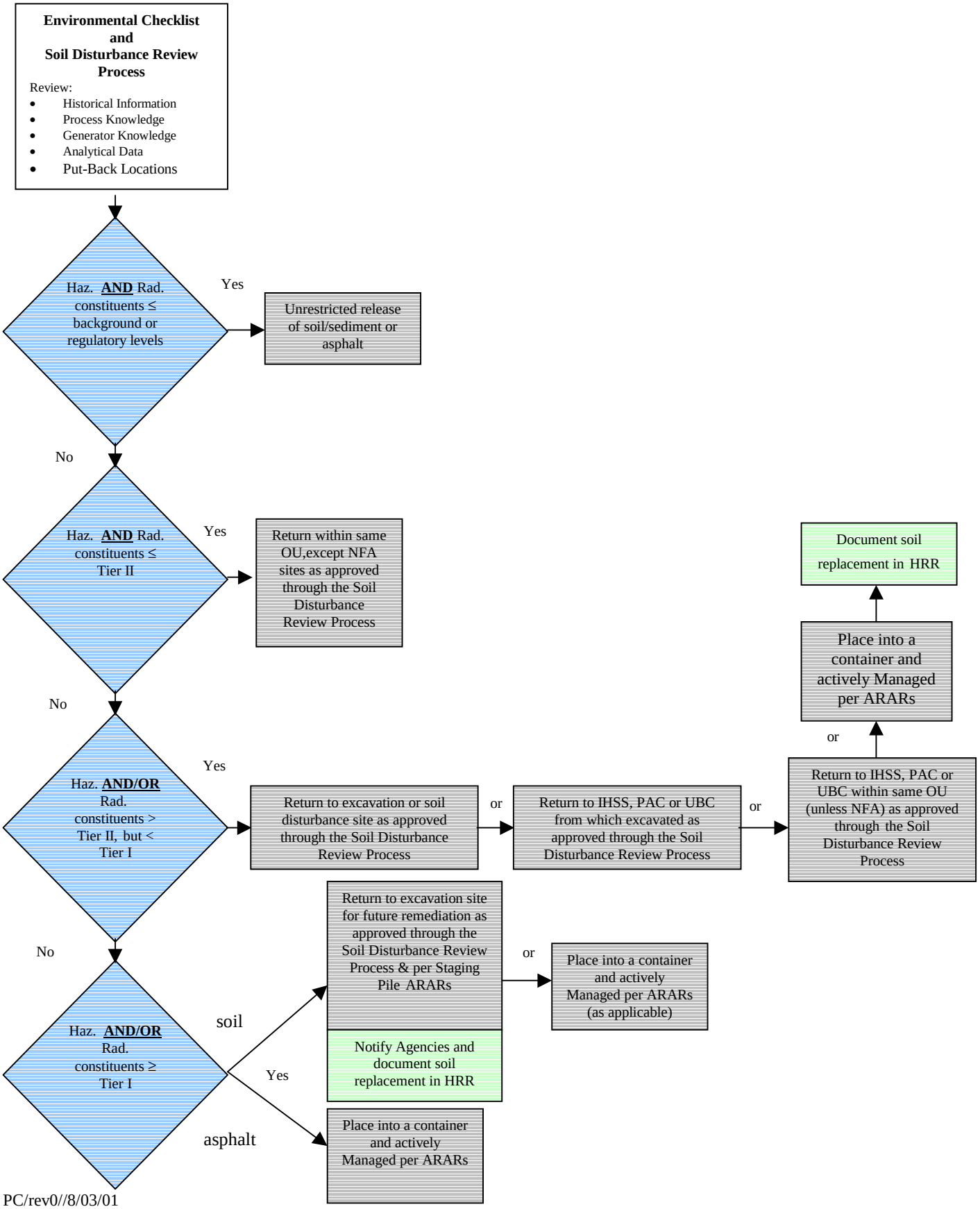
Some excavations may encounter groundwater or surface water intrusion. If this occurs, the water will be removed, managed and dispositioned in accordance with Site procedures.

Notification of implementation of this RSOP resulting in movement of soil above Tier II will be provided via the HRR during either interim annual updates or the Final Annual Update, transmitted at the end of each fiscal year. When soil with constituents greater than RFCA Tier I are being returned to a site, appropriate steps will be taken to ensure the soil is properly stabilized in accordance with the current Annual Vegetation Management Plan. For these soils, a separate notification to the regulatory agencies will be made and documented in addition to placing the Soil Disturbance Review documentation in the Administrative Record (AR). The initial notification will include the following, in accordance with 6CCR 1007-3, §264.554 (d) (2):

(i) Length of time the pile will be in operation;
(ii) Volumes of wastes you intend to store in the pile;
(iii) Physical and chemical characteristics of the wastes to be stored in the unit;
(iv) Potential for releases from the unit;
(v) Hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases; and
(vi) Potential for human and environmental exposure to potential releases from the unit.

CDPHE designation of a staging pile will be on a case-by-case basis upon receipt of Site notification. CDPHE approval is required prior to utilization of the staging pile. The HRR Update will include a summary of the staging piles designated during the previous period.

In general, the operating term for a staging pile is two (2) years. However, the CDPHE may grant extensions to the operating term with sufficient justification. Closure of staging piles is in accordance with 6 CCR 1007-3, §264.554.



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3. WORKER HEALTH AND SAFETY

The primary health and safety concerns pertaining to asphalt and soil disturbances and movement, including drilling and borehole operations, involve manually and mechanically excavating, worker exposure (radiological and chemical), handling, transporting, and placing the backfill. Personal Protective Equipment (PPE), hazards, controls and monitoring requirements will vary depending upon the activity and equipment used. Table 3.1 provides a summary of the principal activities, hazards, controls, PPE, and monitoring. An action-specific Health and Safety Plan (HASP), Activity Hazard Analysis (AHA), and Radiation Work Permit (RWP) will be prepared and implemented on a project-specific basis.

Table 3.1 – Soil Movement/Replacement Health and Safety Summary

Activity	Hazards	Controls	PPE	Monitoring
Excavation /Drilling	Heavy equipment, crushing, open excavations, underground utilities, cave-in, chemical contamination radionuclides,	Thorough hazard analysis, soil disturbance review, required PPE, adequate training /qualification on heavy equipment, utility location prior to excavation, dust suppression, keep nonessential personnel out of area. Use spotter. Additional controls per HASP, AHA, and RWP.	Safety glasses with side shields, hard hat, leather over the ankle safety toed boots; additional requirements per project-specific HASP, AHA, and RWP, when applicable.	Dust, wind speed, competent person inspections, additional requirements per HASP, AHA, and RWP, as applicable.
Manual Handling of soil/sediment	Back Injury, Cuts and Abrasion, open excavations, underground utilities, cave-in, radionuclides, chemical contamination	Required PPE. Adhere to 50 lb/person lifting restriction, use proper lifting (shoveling) techniques, soil disturbance review, utility location prior to excavation, and use of dust suppression.	Safety glasses with side shields, leather gloves, leather over the ankle safety toed boots, additional requirements per HASP, AHA, and RWP, as applicable.	Dust, wind speed, competent person inspections, additional requirements per HASP, AHA, and RWP, as applicable.
Heavy Equipment Handling of soil and sediment	Open excavations, underground utilities, cave-in, radionuclides, chemical contamination, and roll-over.	Required PPE. Training /qualification on heavy equipment, soil disturbance review, utility location prior to excavation, dust suppression. Additional controls per HASP, AHA, and RWP.	Safety glasses with side shields, hard hat, leather over the ankle safety toed boots additional requirements per HASP, AHA, and RWP, as applicable.	Dust, wind speed, competent person inspections, additional requirements per HASP, AHA, and RWP, as applicable.
Backfill / Replacement	Heavy equipment, crushing, open excavations, underground utilities, cave-in, radionuclides, chemical contamination	Soil disturbance review, required PPE, adequate training /qualification on heavy equipment, utility location prior to excavation, dust suppression, Keep nonessential personnel out of area. Use spotter. Additional controls per HASP, AHA, and RWP.	Safety glasses with side shields, hard hat, leather over the ankle safety toed boots additional requirements per HASP, AHA, and RWP, as applicable.	Dust, wind speed, competent person inspections, additional requirements per HASP, AHA, and RWP, as applicable.

4. WASTE MANAGEMENT

Soils and asphalt excavated under this RSOP and not replaced within the OU, IHSS, PAC or UBC as previously described, will either be containerized for on-site management in accordance with substantive waste management ARARs identified in Section 6 or packaged and shipped in accordance with regulatory requirements and receiver site Waste Acceptance Criteria (WAC). These materials are considered remediation waste and may be subject to a CERCLA off-site rule determination prior to off-site disposition. Soils and asphalt will be characterized in accordance with regulatory and receiver site WAC requirements.

5. ENVIRONMENTAL CONSEQUENCES

This section describes potential environmental impacts that may be associated with asphalt and soil management at RFETS. The adverse effects are expected to be minimal and temporary. The beneficial impacts of proper asphalt and soil management could be substantial. Beneficial impacts would include the effective reuse of resources, asphalt and soil, the time and labor savings associated with that reuse, and the environmental impacts avoided by not sending soils or asphalt to off-Site locations.

The consequences of asphalt and soil management activities will be minimal for some topics, as discussed in this paragraph. Because the scope of asphalt and soil management does not include the demolition or disposition of Site buildings and facilities, no impact to historic resources will occur. Should historic or archeological resources be found during soil disturbance activities, work will be stopped and Site procedures regarding historic and archeological resources will be followed. Management of asphalt and soil will provide employment for a limited number of people, who will be working under the scope of other work activities. Most workers will be part of the current Site work force, and socioeconomic effects will be minimal. Environmental Justice issues are not relevant to this document; work will occur on-Site and there is little potential to affect the nearest off-Site receptor. Noise generated by equipment (e.g., graders, backhoes) used to manage asphalt and soil will be similar to noise generated by other on-Site activities, and will not be notable.

The activities described in this RSOP support the overall mission to clean up and make the Site safe for future uses. The cumulative effects of this broader, Site-wide effort are also described in the Cumulative Impacts Document (CID). That document describes the short- and long-term effects of the overall Site clean up mission. Remediation of soils and asphalt under this RSOP, including those returned to excavation sites, is scheduled to be completed by Site Closure in 2006. Accordingly, there are no long-term impacts as a result of this soil/asphalt management approach.

To ensure a thorough review of specific actions that will generate soils and asphalt managed under this RSOP, an activity-specific environmental review for each action will be conducted. Review of each action will ensure adequate consideration of environmental concerns.

5.1 Soils and Geology

Surface and subsurface soils have been mixed, compacted, and otherwise disturbed throughout the Site's IA. Ongoing activities will further disturb soils and asphalt throughout the Site. Most activities will occur in developed areas and will affect soils/asphalt that has been previously disturbed.

Some contaminated soils could be affected. Where contaminated soils are disturbed, the soil will remain at the original contaminated location or be placed in a new location that has similar concentrations of the same type of constituents; contaminated soil will not be distributed to undisturbed or "clean" areas. Similarly, contaminated asphalt may be returned to its original contaminated location, or placed in a new location with similar concentrations of the same type of constituents, if less than Tier I. Asphaltic material greater than or equal to Tier I will be containerized and actively managed in accordance with the ARARs.

Because exposed soils, especially soils found on sloped portions of the Site, may be readily eroded, erosion control methods will be used, as necessary. Best management practices, such as the installation of silt fences and the use of tarps or hay bales, will be used at work sites to prevent the transport of sediment. Temporary stockpiles will be limited to areas adjacent to where the soils have been removed; stockpile size will be dictated by excavation requirements. Revegetation may be required to provide erosion control.

The management of soils in areas to be remediated, especially those soils currently underlying paved areas, will have a substantial effect on the final productivity of those soils. The natural soil profile has been eliminated in many areas; for example, soils underlying paved areas have been graded, tilled, compacted, and otherwise altered. These soils may not be productive if the paving is stripped off and the soils are left in an exposed condition. Exposed areas could add to surface water runoff and sediment transport problems. Soils in such areas will be improved (e.g. blended with mulch and fertilizer) in accordance with Site revegetation procedures, as needed. If necessary, additional topsoil will be imported and used, or soils will be amended (e.g., mixed with mulch) and managed based on guidance from Site ecologists. The further disturbance of soil and the stockpiling of soil is not likely to have a notable impact on soil or subsurface geology. Contaminated asphalt will not be stockpiled.

5.2 Air Quality

Work that disturbs asphalt and soil paved areas will generate air pollutants. The potential regulated pollutants include criteria air pollutants (e.g., fugitive dust), hazardous air pollutants, and radiological air emissions. The pollutant most frequently generated, and generated in the greatest amounts, would be fugitive dust, specifically particulate matter less than ten microns in size (PM_{10}).

The Colorado Air Quality Control Commission Regulation No. 1 requires that practical, economically reasonable, and technologically feasible work practices are used to control dust emissions. Dust control measures will be evaluated and implemented on a project specific basis. The air quality impact from disturbing soil and paved areas, and the use of heavy equipment would be short-term, and controllable.

A soil disturbance review is issued for activities that disturb soils and asphalt. The review includes a

description of hazardous and radiological constituents in the material. Radiological concerns associated with dust emissions are triggered at an action level of 0.1 millirem per year (mrem/yr) Effective Dose Equivalent (EDE) to the most impacted member of the public. A 0.1 mrem/yr EDE typically warrants regulatory agency notification, and monitoring will be conducted as needed. Measures to control emissions from hazardous or radiological areas will be identified to assure compliance with applicable air quality regulations. These and other measures will be designed to protect the health of workers, the public and the environment. These measures will be identified in a HASP, AHA, and RWP, as applicable.

Adverse air quality impacts will be short-term and will be controlled. An activity-specific environmental checklist will identify the scope of a given work effort and will be evaluated for air regulatory requirements, such as, Air Pollutant Emission Notices and Regulation Number 1 dust control measures, as appropriate. Therefore, potential impacts to workers and the public from proposed soil/asphalt disturbances will be identified and controlled.

5.3 Surface Water and Groundwater

Surface water and groundwater may be affected during and after excavation and other soil disturbances, and storage (e.g., stockpiling) of soils. Wind and water erosion associated with these activities could adversely impact water quality if not properly mitigated. With proper mitigation, impacts will be minimal.

Following excavation and other soil disturbances, the type of fill and soil management practices will influence groundwater infiltration and surface water run-off. For example, groundwater infiltration could increase and surface water run-off will decrease when asphalt is removed and hard packed soils are scarified and revegetated. Rain and snow will exacerbate erosion and the potential effects on surface waters. Prompt revegetation of open areas, and especially sloped areas, will be conducted as needed to reduce impacts to surface water.

Similar to excavated soils, stockpiled soils will be subject to erosion. Stockpiled soils will be managed to control erosion (e.g., covered with tarps). Contaminated soils will be placed back into excavated areas, packed into surface soils, or otherwise prevented from eroding. Contaminated soils may also be placed into containers for off-Site disposal. These management techniques will be used to prevent adverse effects.

5.4 Human Health and Safety

This evaluation of human health impacts addresses activities associated with management of soils and asphalt derived from a variety of activities at RFETS (see Section 1.1). The activities that have generated soils (e.g., drilling, grading) are or will be addressed in other decision documents or in activity-specific reviews. Potential human health impacts resulting from asphalt and soil management activities include fugitive dust, exposure to radioactive or hazardous materials, and on-Site and off-Site traffic.

For the on-Site component of soil management activity, the CID reports the following estimated annual radiological doses from Site closure activities: maximally exposed collocated worker 5.4 mrem;

maximally exposed member of the public 0.23 mrem; population dose 23 person-rem. The population dose would be expected to produce 0.012 latent cancer fatalities in the region of interest population of 2.7 million. Since these estimates include all Site closure activities, impacts from activities addressed in this RSOP will be a small fraction of those reported above.

Environmental impacts due to transportation of Low-Level Waste/Low-Level Mixed Waste (LLW/LLMW) from RFETS closure activities to disposal facilities is addressed in Attachment 3 of the Facilities Disposition RSOP. The analysis includes transportation of all LLW/LLMW generated during Site closure and concluded that:

> "… impacts of shipping LLMW and LLW from RFETS to disposal sites on air quality, human health and safety, traffic, and environmental justice would be minimal."

Impacts associated solely with LLW/LLMW asphalt and soil management activities would be a fraction of those addressed in the transportation analysis. To the degree that excavated soils may be replaced on-Site rather than shipped to off-Site disposal locations, activities addressed in this RSOP will reduce impacts from LLW/LLMW transportation.

5.5 Ecological Resources

The proposal to manage asphalt and soil under this RSOP will not directly affect ecological resources, but may have substantial indirect effects. Allowing soils to erode from disturbed areas could have an adverse impact on plants and animals, however, as discussed in Section 5.1 Soils and Geology, erosion control measures will be implemented. Preventing soil erosion will also prevent adverse effects on surface water quality. If soils are remediated to a productive state, and open areas are properly revegetated, the asphalt and soil management activities will be beneficial for native plant and animal species. The benefit would be directly related to size of the affected area and the productivity of the soil. If soils are left exposed for an extended period of time, weed control measures may be necessary. The beneficial impacts of proper erosion controls and remediation, or adverse impacts if soils are not properly managed, will be long-term.

5.6 Visual Resources

Asphalt and soil management activities could result in temporary and minor visual impacts during Site closure. However, the long-term visual impact resulting from asphalt and soil management will be more notable. Because soils will be properly amended and revegetated, paved and other disturbed areas will return to a native grassland appearance. If measures to properly manage soils are not adequately implemented, erosion can lead to long-term and highly visible surface damage.

5.7 Transportation

Although most soils and asphalt will be managed on-Site, some may be disposed of at off-Site locations. On-Site transfers of asphalt and soil at the RFETS could contribute to on-Site traffic. Transportation of RFETS wastes has been analyzed from a NEPA perspective in other documents. There are three areas

(air quality, human health and safety, and traffic) that could be impacted due to the transportation of contaminated soils.

As discussed in Attachment 3 of the Facilities Disposition RSOP, the primary air quality concern is fugitive dust, due to vehicle traffic on paved and unpaved roads. Tailpipe emissions and airborne particulate matter caused by vehicle brakes and tires are also air quality concerns. However, air pollution generated by the anticipated truck traffic is projected to be well below regulatory standards, and would not reach a level of concern. Because of stringent United States Department of Transportation (DOT) packaging and shipping standards, cargo-related accidents would pose a minimal concern to human health and safety. Finally, the low volume of daily truck traffic is not expected to significantly affect road traffic or safety. The cumulative projected impact of shipping contaminated asphalt and soil off-Site, considered with the impacts of other ongoing and reasonably foreseeable future actions, is stated to be minor.

5.8 Unavoidable Adverse Effects

Some temporary, adverse effects may occur because of the soil management activities. Small areas of surface and subsurface soil conditions may change. Minor quantities of pollutants may be released to the atmosphere and surface water. Workers will experience typical health and safety risks that are associated with working with heavy equipment. Noise levels will increase slightly. Traffic and associated effects may be temporarily increased.

5.9 Cumulative Impacts

Activities that disturb, store, or otherwise manage soils and asphalt at RFETS may contribute to environmental effects from other on- and off-Site activities. Dust and other air emissions generated during asphalt and soil management activities, combined with other on- and off-Site activities and construction, may be cumulative.

Eroded soils may reach surface waters, and could combine with other pollutants from on-Site demolition and construction activities. However, erosion from soil disturbances will be controlled.

Soils will be exposed during various activities (e.g., the removal of pavement), and newly exposed soils will need to be properly managed (e.g., scarified and reseeded). This will have the effect of decreasing surface water run-off and increasing groundwater recharge.

Asphalt and soil that is to be sent off-Site for disposal, or transported on-Site for use as backfill or other purposes, will contribute to on- and off-Site traffic. Cumulative impacts associated with transportation could include increased traffic congestion, slower speeds on off-Site roads and highways, and an increased potential for traffic accidents. The cumulative impacts from asphalt and soil management are not anticipated to be notable, and will be temporary. Minor changes that could occur under this RSOP, such as decreased surface water runoff, will be addressed during the environmental restoration of the entire Site.

6. COMPLIANCE WITH ARARS

This section contains the substantive ARARs applicable to asphalt and soil management and disposition at the RFETS. The following table outlines the requirement, the citation of the requirement, the type of requirement, and comments associated with the requirement and its relationship to soil management. The letters in the Type column refer to the ARAR classification, and the letters indicate the following: C, chemical-specific ARAR; A, action-specific ARAR; and L, location-specific ARAR.

Table 6.1 – ARARs

REQUIREMENT	CITATION	TYPE	COMMENT
SOLID WASTE DISPOSAL ACT (aka: Resource Conservation and Recovery Act) [42 USC § 6901 et. seq.] SUBTITLE C: HAZARDOUS WASTE MANAGEMENT [Colorado Hazardous Waste Act (CRS § 25-15-101 to -217)]			
The State of Colorado is authorized to administer portions of the hazardous waste management program (e.g., RCRA) to regulate the generation, treatment, storage, and disposal of hazardous waste within Colorado. Although the Colorado hazardous waste management regulations are similar to the federal requirements, both the federal and state regulatory citations are provided for reference purposes and to denote that both federal and state requirements were considered in establishing the identifying the ARAR requirement adopted for the remediation of the RFETS. Only substantive portions of the regulations are required under CERCLA actions for on-site activities.			
HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL	6 CCR 1007-3, 260.10 [40 CFR 260.10]	A	Remediation waste means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous waste characteristic and are managed for implementing cleanup.
IDENTIFICATION AND LISTING OF HAZARDOUS WASTES	6 CCR 1007-3, 261 [40 CFR 261]	A	
GENERATOR STANDARDS	6 CCR 1007-3 Part 262 (40 CFR Part 262)		
• Hazardous waste determinations	.11	A/C	Persons who generate solid wastes are required to determine if the wastes are hazardous according to 6 CCR 1007-3 Parts 261, 267, 279 [40 CFR Parts 261, 266, and 279]
• Hazardous waste accumulation areas	.34 (a)(1)(i),(ii),(iv), excluding A & B); (a)(3); (a)(4); (c)(1)	A	Persons who accumulate hazardous waste in containers or tanks must manage the waste in a manner that protects human health and the environment.
PREPAREDNESS AND PREVENTION	6 CCR 1007-3 Part 264, Subpart C [40 CFR 264, Subpart C]		
• Design and Operation of a Facility	.31	A/C	Design facilities to minimize the potential for fire, explosion or release of hazardous waste.
• Required Equipment	.32	A/C	Facilities must be equipped with specified equipment to mitigate incidents, should they

Table 6.1 – ARARs

REQUIREMENT	CITATION	TYPE	COMMENT
			occur.
• Testing and Maintenance of Equipment	.33	A/C	Equipment must be maintained.
• Access to Communications or Alarm System	.34	A/L	Employees must have access to emergency communications when managing hazardous waste.
• Required Aisle Space	.35	A	Aisle space must be maintained to allow unobstructed access to emergency personnel and emergency equipment.
• Arrangement with Local Authorities	.37	A/L	The owner/operator must make arrangements with specified local emergency personnel.
CONTINGENCY PLAN AND EMERGENCY PROCEDURES	6 CCR 1007-3 Part 264, Subpart D [40 CFR Part 264, Subpart D]		
• Purpose and Implementation	.51 (b)	A/C	RFETS Emergency Response Plan incorporates the substantive requirements of the Contingency Plan in the Site's Part B Hazardous Waste Permit. Emergencies such as fire, explosion, or release of hazardous waste must be mitigated immediately.
• Emergency Coordinator	.55	A	
• Emergency Procedures	.56 (a-i)	A	A designated employee is responsible for coordinating emergency response actions.
MANIFEST SYSTEM, RECORDKEEPING, AND REPORTING	6 CCR 1007-3 Part 264, Subpart E [40 CFR Part 264, Subpart E]	A A	Operating Record Recordkeeping
USE AND MANAGEMENT OF CONTAINERS	6 CCR 1007-3 Part 264, Subpart I [40 CFR Part 264, Subpart I]		
• Condition of Containers	.171	A	Containers must be maintained in good condition.
• Compatibility of Waste in Containers	.172	A	Wastes must be compatible with containers.
• Management of Containers	.173	A	Containers must be closed except when adding or removing waste.
• Inspections	.174	A	Containers must be inspected weekly.

Table 6.1 – ARARs

REQUIREMENT	CITATION	TYPE	COMMENT
• Containment	.175	A	
• System Design and Operation			
• Incompatible Wastes	.177	A	
• Closure	.178	A	Hazardous wastes and residues of hazardous waste must be removed or decontaminated from the unit and soils.
• Air Emission Standards	.179	A/C	Hazardous wastes must be managed in accordance with AA, BB, CC, as appropriate.
CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS	6 CCR 1007-3, Part 264 subpart S [40 CFR Part 264, Subpart S]		
Staging Piles	.554 (d)(1)(i) and (ii)	A	The volume of Tier I soil should be wrapped in material that will isolate it from surrounding environmental media or in some other manner that meets the requirements of 264.554(d)(1).
	.554(d)(2)(i) – (vi)	A	
AIR EMISSION STANDARDS FOR TANKS, SURFACE IMPOUNDMENTS, AND CONTAINERS	6 CCR 1007-3 Part 264, Subpart CC [40 CFR Part 264, Subpart CC]		
• Standards: General	.1082	A	Air emission standards must be incorporated into the design of container facilities that store or treat hazardous waste with organic concentrations equal to or greater than 10 ppm (by weight).
• Waste Determination Procedures	.1083	A	
• Standards: Containers	.1086	A	
• Inspection and Monitoring Requirements	.1088	A	
LAND DISPOSAL RESTRICTIONS	6 CCR 1007-3 Part 268 [40 CFR Part 268]		
• Dilution Prohibited as a Substitute for Treatment	.3	A	LDR determinations must be completed for hazardous wastes generated.
• LDR Determination (Determination if Hazardous Waste Meets the LDR Treatment Standards)	.7	A	Land disposal restrictions apply primarily to the off-site disposal actions proposed as part of the remedial activity.
	.9 (a-c)	A	

Table 6.1 – ARARs

REQUIREMENT	CITATION	TYPE	COMMENT
• Special Rules for Wastes that Exhibit a Characteristic • Treatment Standards for Hazardous Debris	.45	A	Alternative Land Disposal restrictions for debris treatment.
TOXIC SUBSTANCES CONTROL ACT (TSCA) [15 USC 2601 et seq.] Relating to PCBs			
MARKING REQUIREMENTS	40 CFR 761.40 and .45	A	Labeling of PCBs and PCB storage Areas
DISPOSAL REQUIREMENTS • Applicability • Disposal Requirements • PCB Remediation Waste	 761.50 761.60 761.61	A	 General PCB Disposal Requirements Disposal Requirements
STORAGE REQUIREMENTS FOR PCBs • Facility Criteria • Temporary Storage • Inspections • Container Specifications • PCB radioactive waste • Marking	40 CFR 761.65	A	
CLEAN AIR ACT (CAA) [42 USC 7401 et. Seq.]			
COLORADO AIR QUALITY CONTROL COMMISSION (CAQCC) REGULATIONS • Fugitive Particulate Emissions - Construction Activities - Storage and Handling of Material - Haul Roads - Haul Trucks - Demolition Activities	5 CCR 1001 [40 CFR 52, Subpart G] Section III.D III.D.2(b) III.D.2(c) III.D.2(e) III.D.2(f) III.D.2(h)	A	Every activity shall employ control measures and operating procedures that are technologically feasible and economically reasonable which reduce, prevent, and control fugitive particulate emissions (control plans, use of control equipment, watering, etc.).
• Air Pollutant Emission Notices (APEN), Construction Permits and Fees, Operating Permits, and Including the Prevention of Significant Deterioration - APEN Requirements	CAQCC Reg. No. 3 [5 CCR 1001-5] Part A, Section II	C	An APEN shall be filed with the CDPHE prior to construction, modification or alteration of, or allowing emissions of air pollutants from any activity. Certain activities are exempted from APEN requirements per specific exemptions listed in the regulation.
NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS			

Table 6.1 – ARARs

REQUIREMENT	CITATION	TYPE	COMMENT
• National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities	40 CFR 61, Subpart H 61.92	C, L	
- Standard	61.93	C, A	This section establishes a radionuclide emission standard equal to those emissions that yield an effective dose equivalent (EDE) of 10 mrem/year to any member of the public. The Site complies by using stack effluent discharge data and empirically estimated fugitive emissions in the dose model CAP88-PC for calculating the EDE to the most impacted member of the public to ensure that it does nor exceed 10 mrem/year. Also, the perimeter samplers in the Radioactive Ambient Air Monitoring Program sampler network are utilized to verify compliance with the standard.
- Emission Monitoring and Test Procedures	61.96	C, L	This section establishes emission monitoring and testing protocols required to measure radionuclide emissions and calculate EDEs. This section also requires that radionuclide emissions measurements (stack monitoring) be made at all release points which have a potential to discharge radionuclides into the air which could cause an EDE to the most impacted member of the public in excess of 1% of the standard (0.1 millirem/year).
- Compliance and Reporting			This section requires the Site to perform radionuclide air emission assessments of all new and modified sources. For sources that exceed the 0.1 mrem/year EDE threshold (controlled), the appropriate applications for approval must be submitted to the EPA and the CDPHE. Additional substantive requirements may apply if the activity requires approval.
FEDERAL WATER POLLUTION CONTROL ACT (aka Clean Water Act (CWA)) [33 USC 1251 et. Seq.]			
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REGULATIONS • Applicability of Best Management Practices • Best Management Practices Programs	40 CFR 125.102 40 CFR 125.104	A	These subparts are applicable to storage and use of products that contain toxic and hazardous pollutants above reportable quantity limitations, at a facility covered by an NPDES permit. In decision documents, identify and protect all connections to the sanitary collection system.

7.0 RSOP ADMINISTRATION

This section contains the information associated with the implementation and documentation of the RSOP and the approval of the RSOP.

7.1 Implementation Schedule

Once the regulatory agencies approve this RSOP, the DOE may implement the RSOP throughout the duration of the Rocky Flats Closure Project. No further formal approvals are required.

Notification of implementation of this RSOP resulting in movement of soil above Tier II will be provided via the HRR during either interim annual updates or the Final Annual Update, transmitted at the end of each fiscal year. Analytical data for soil characterization will be placed into the appropriate Site database.

The DOE will also separately notify the regulatory agencies anytime soils greater than Tier I are placed back at the point of generation for future remediation. For these soils, the separate notification to the regulatory agencies and the Soil Disturbance Review documentation will be included in the Administrative Record (AR) and the annual HRR update.

7.2 Administrative Record

This section identifies the documents that constitute the administrative record file for this decision. After completion of the public comment period, all comments received from the public, the responsiveness summary, and the approval letter will be incorporated into the administrative record file. Approval of this decision document is approval by the regulators of the project's administrative record file. The following documents constitute the administrative record file:

- Rocky Flats Cleanup Agreement, July 19, 1996 (As Updated)
- Background Geochemical Characterization Report, EG&G, 1993
- Current Annual Vegetation Management Plan for the RFETS
- Draft RSOP submitted for formal public comment
- Responsiveness Summary
- Final RSOP
- RSOP approval letter
- Cumulative Impacts Document
- Historical Release Report and Annual Updates
- 4-F99-ENV-OPS-FO.23 Management of Soil and Sediment Investigation-Derived Materials
- 4-F46-ENV-OPS-FO.29 Disposition of Soil and Sediment Investigation-Derived Materials
- Facilities Disposition RSOP
- Industrial Area Sampling and Analysis Plan
- Buffer Zone Sampling and Analysis Plan

7.3 Responsiveness Summary

A responsiveness summary has been prepared to address public comments received and responded to during the formal comment period.

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
1	**RSOP Use for Accelerated Actions** Broomfield questions the use of an RSOP for maintenance activities. Per RFCA, there are three types of accelerated actions: a) Interim Measure/Interim Remedial Action, b) Proposed Action Memorandum (PAM), and c) RFCA Standard Operating Protocol (RSOP). The Asphalt and Soil Management RSOP scope address maintenance activities, not accelerated actions per RFCA.	Due to the 2006 anticipated physical completion date, the RFCA Parties agree the use of an RSOP is the most beneficial, consistent and efficient method for managing asphalt and soil at the RFETS that requires disturbance prior to final cleanup decisions, regardless of why the soil has been disturbed. Since remedial actions at the RFETS will be completed within the next 5 years, it is prudent to apply the same criteria to all soil rather than making a distinction for one type of soil disturbance activity. The activities covered under this RSOP include maintenance activities, but handling and characterization of the soil is relevant to Environmental Restoration. While RSOPs may be utilized for accelerated actions, RFCA does not limit the use of RSOPs to accelerated actions, but includes "routine environmental remediation activities".
2	**Staging Piles** Staging Pile as defined in 6CCR 1007-3, §264. 554, is an accumulation of solid non- flowing remediation waste (as defined in 40 CFR §260. 10) that is not a containment building and is used only during remedial operations for temporary storage at a facility. The purpose and scope of the Asphalt and Soil Management RSOP is to manage soil and asphalt generated from various activities such as maintenance activities or investigative derived materials (IDM). Broomfield does not consider maintenance activities or investigative activities to be defined as accelerated remedial operations or activities. A RSOP is a standard operating protocol identified in the Rocky Flats Cleanup Agreement (RFCA) as one of three types of accelerated actions to be conducted. Clearly, the activities identified within the document are not accelerated activities that are associated with materials to be staged in a staging pile per the regulations. However, if the Colorado Department of Public Health and the Environment (CDPHE) broadens the definition of remedial actions and the use of staging piles, the City has the following questions and issues	The generation of Investigation Derived Material (IDM) is part of remedial activities. It is generated during characterization efforts to determine the nature and extent of contamination in order to select a remedy. Since IDM is the same material that will be evaluated and potentially remediated using RFCA criteria, it is consistent to apply the same criteria to the same soil source. An RSOP is a RFCA Standard Operating Protocol – not a procedure. RSOP sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific management requirements will be identified during the soil disturbance review and environmental checklist processes. Closure of staging piles will be consistent with all 6CCR 1007-3. Refer to Section 2.4 of the RSOP.

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	with the use of staging piles at Rocky Flats. The procedure lacks details and for the City to support the RSOP and its activities, we would like to see a section define the placement, management, and closure of the proposed staging piles. The following information should be incorporated into the RSOP prior to approval of the document. 1. Staging piles must be designated by the Director according to the requirements of §264.554. Define how the Director can designate the piles prior to implementing their use and ensuring all performance criteria is satisfied. Per the RSOP, the staging piles are utilized prior to approval by the director. The activities associated with staging piles should be included in a Remedial Action Plan (RAP). Define how stakeholders will be involved with development or input of the RAP.	Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made prior to the time they are created. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by the CDPHE is approval by the Director of the designation criteria and performance criteria. (It is not possible to designate a specific area, since that is unknown at this time.) As long as DOE follows the criteria identified in the RSOP, the process will work under RFCA. If DOE does not follow the criteria identified in the RSOP, then CDPHE, using the consultative process, can work with DOE until the criteria are being met or CDPHE may issue a stop work order. A RAP is a special form of RCRA permit that an owner or operator may obtain instead of a permit issued under 270.3 through 270.66 to authorize the owner or operator to treat, store, or dispose of hazardous remediation waste (as defined in 260.10) at a remediation waste management site (270.80). Under RFCA, separate permits are not required for activities related to removal or remedial actions in the Buffer Zone or remedial actions in the Industrial Area (RFCA paragraph 16a, d). Criteria that are required in a permit must be included in the RFCA decision document. This RSOP is the RFCA decision document that specifies the ARARs required for designation of staging piles. Therefore, neither a separate permit or RAP is required; the RSOP is the regulatory vehicle available for stakeholders to be involved in the development or input into the use of staging piles at RFETS.

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
3	2. The document should identify the standards and design criteria the Director has designated for each specific staging pile.	The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by CDPHE is approval by the Director of the designation criteria and performance criteria. (Section 2.4).
4	3. What document will designate the staging pile(s)? The Historical Release Report (HRR) does not act as a permit, closure plan, or order. Revise the Asphalt and Soil RSOP to identify which document will provide sufficient information and criteria for the use of a staging pile.	Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made prior to the time they are created. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. Closure of staging piles will be consistent with 6CCR 1007-3.
5	4. Include all pertinent information the Director will require for the use of a staging pile to protect human health and the environment. It is logical that certification will not be required for the proposed use of staging piles, therefore include information as to why certification will not be required along with approval of the director.	RSOP sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific management requirements will be identified during the soil disturbance review and environmental checklist processes. Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated.

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by the CDPHE is approval by the Director of the designation criteria and performance criteria. (It is not possible to designate a specific area, since that is unknown at this time.) The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by CDPHE is approval by the Director of the designation criteria and performance criteria. (Section 2.4).
6	5. 6 CCR 1007-3, § 264.554 (d) (1) (i) and (ii) are identified in Table 6. 1 -ARARS, and do not specifically apply to the scope of the document. The staging pile will not facilitate a reliable, effective and protective remedy. Returning contaminated soils into the original excavation will not prevent or minimize releases of hazardous wastes and hazardous constituents into the environment, nor minimize or adequately control cross-media transfer, as necessary to protect human health and the environment. The regulation suggests the use of liners or run-off/on controls as appropriate. The RSOP does not mention the use of liners when soil is replaced back into the ground. Will liners be utilized? Identify the run-off/on controls.	The RFCA Parties do not agree that 6 CCR 1007-3, section 264.554 (d) (1) (i) and (ii) do not apply to the scope of this RSOP. It is important to note that staging piles are only proposed to be implemented where hazardous constituent concentrations are greater than or equal to RFCA Tier I levels and that the soil may only be returned to the original excavation or disturbance site. The soil will be evaluated during future ER activities that should be completed in 2006. In addition, an overarching principal of the RSOP is that the disposition of disturbed or excavated soil must be protective of human health and the environment and that soil disturbance is to be performed in a manner that causes no significant net environmental impact. If the soil above Tier I that had to be disturbed were causing an immediate threat to human health or the environment, then a remedial action should be taken sooner than later and the area would be high up on the ER Ranking list, such that an action would have already been taken or one would be planned for the immediate future. If the area is not an immediate threat to human health or the environment, then waiting until ER activities reach that area should cause no more net environmental harm than if the soil had not been disturbed and returned to the environment. The RFCA Parties believe that this approach is an effective and protective intermediate remedy rather than adding clean

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		soil to an area that will need further evaluation, and most likely remediation, in the future. Adding clean soil to this type of environment creates the possibility of cross-contaminating the clean soil that could cause the generation of even more remediation waste requiring offsite disposition. If the disturbed area contains soil with hazardous constituent concentrations greater than or equal to RFCA Tier I levels, such that after the disturbance, the remaining soil is believed to be below Tier I, then the soil disturbance permit Subject Matter Experts (SMEs) may decide to not allow the soil to be returned to the excavation site. The soil would be replaced into a container and actively managed in accordance with ARARs. In this instance, it would not be effective and protective to return soil to an area that may not require further remediation. This decision would be included in the evaluation conducted during the soil disturbance review and environmental checklist processes. The use of liners and runoff/on controls will be evaluated on a case-by-case basis and will be implemented as required during the soil disturbance review and environmental checklist processes.
7	6. CCR 1007-3, § 264.554 (d) (iii) is not identified as an ARAR and is key to the management and operation of the proposed use of staging piles. Staging piles must not operate for more than two years, except when an operating term extension is granted by the Director. To be consistent with previous RSOPS, the City expects that the RSOP include a section addressing the specific criteria pertaining to staging piles. The City is concerned with the process of identifying staging piles annually in the HRR and how the timeframe for staging piles will be addressed and documented. We are concerned the timeframe for each staging pile will not start until the HRR is revised. Per the regulations, once material is introduced to a staging pile, the timeframe is initiated. The following information should be added to the RSOP to define how criteria for the staging piles will be recorded, managed, and	RSOP sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific management requirements will be identified during the soil disturbance review and environmental checklist processes. Closure of staging piles will be consistent with 6 CCR 1007-3. Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	tracked. • Incorporate the requirement to distinguish the exact location of each staging pile. (GIS) • Identify the standards and additional specific criteria for each pile. • Identify the requisite to identify a date when remediation waste is first replaced into the staging pile. • Identify how and by what organization the length of time will be tracked to ensure the two-year storage period is not exceeded. • Identify the volumes of waste to be stored in the staging pile(s). (maximum volumes) • Identify the criteria to determine the physical and chemical characteristics of the waste to be stored. • Identify the necessity to recognize the potential for release. • Identify the necessity to detect hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases. Broomfield is specifically interested when excavation activities encounter groundwater. • Identify the methodology to detect the potential for human and environmental exposures to potential releases from the unit. • Identify the restriction on placing ignitable, reactive, or incompatible remediation waste into a staging pile. • Identify what actions will be taken if an area <u>is not</u> <u>remediated within the extended operating period.</u> Will the staging pile be removed prior to requesting an extension or prior to the extended period? • Add a section to the RSOP defining the closure process for a staging pile, along with identifying the document that will include the closure of each staging pile. • Identify the required closure requirements for a staging pile. How will subsoils be dispositioned per the closure requirement? • Identify the Site document that allows you to use a staging pile or modify the requirements of a staging pile. • Integrate the rationale the Director has for designating a staging pile per this RSOP into the revised document.	Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by the CDPHE is approval by the Director of the designation criteria and performance criteria.

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
8	**Remedial Action Plans** Section 3005 of RCRA requires permits for treatment, storage of disposal of hazardous waste. As currently implemented, RCRA requires remediation waste to be managed under the same kind of permit as newly-generated process wastes. The HWIR-Media rule establishes Remedial Action Plans (RAPs), which are less burdensome forms of RCRA permits for hazardous remediation waste management sites. Identify the process for the development of the RAP and clarify stakeholders involvement. The Asphalt and Soil Management RSOP should be revised to include information associated with the RAP.	A RAP is a special form of RCRA permit that an owner or operator may obtain instead of a permit issued under 270.3 through 270.66 to authorize the owner or operator to treat, store, or dispose of hazardous remediation waste (as defined in 260.10) at a remediation waste management site (270.80). Under RFCA, separate permits are not required for activities related to removal or remedial actions in the Buffer Zone or remedial actions in the Industrial Area (RFCA paragraph 16a, d). Criteria that are required in a permit must be included in the RFCA decision document. This RSOP is the RFCA decision document that specifies the ARARs required for designation of staging piles. Therefore, neither a separate permit or RAP is required; the RSOP is the regulatory vehicle available for stakeholders to be involved in the development or input into the use of staging piles at RFETS.
9	**Asphalt Action Levels** Broomfield understands the issues associated with characterizing asphalt and the proposed solution is acceptable for short-term storage. The RFCA does not identify an action level for asphalt and the RSOP uses soil subsurface levels for disposition. If asphalt is to be used as backfill long-term, the City requests information on the process to determine the risks associated with asphalt and the impacts to the environment. If asphalt is to be used as backfill, how will the material be compacted to prevent subsidence? Provide the studies or associated material DOE has used to determine stewardship impacts when asphalt is used as backfill. Clarify why soil action levels are interchangeable with asphalt action levels and identify the correlating physical characteristics with impacts to the environment.	Asphalt will not be utilized as backfill for long-term solutions. Since asphalt itself is not a solid waste under Colorado law, asphalt "will be evaluated based upon process and/or historical knowledge of the surrounding soils related to contamination from a previous spill or release onto or under the asphalt. Due to the nature and composition of asphalt, it is impractical to establish "background" levels for chemical, metal, or radionuclide constituents in the asphalt matrix itself." Asphalt utilized as backfill on a temporary basis, may be recycled or removed and dispositioned off-site.
10	**Use of Tiered System** The City understands the radionuclide soil action levels (RSALS) are under review and will change and the document states the RSOP will be *"reviewed and modified, as appropriate. "* Broomfield takes issue with the assumption of using subsurface RSALS to determine	The RSOP cannot be approved and used based upon proposed or pending modifications to the RFCA . If and when the RSALs are modified, the RSOP will be amended to incorporate any new action levels. Section 1.3 has been changed to clarify this point.

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	management options for excavated soils. Discussion at several Rocky Flats meetings have suggested the surface level RSAL will be much lower than the subsurface RSAL level for plutonium and americium due to the insolubility of the constituents. Once the RSAL is approved, the RSOP should be revised to address action levels for surface concentrations for radionuclides. Broomfield is assuming the hazardous constituent concentrations will remain the same. Modify the procedure to reflect proposed changes to the document to state the surface RSAL will be used. Address surface and subsurface levels to ensure the most conservative concentration is used for the proposed management options identified within the RSOP. Broomfield contends that when subsurface material is replaced on the surface for stockpiling, it becomes surface material with a potential to impact surface water. Broomfield is also concerned stockpiles will remain on the surface awaiting characterization for at least four to five months. It is unacceptable to classify material replaced and stored on the surface as subsurface material.	Excavated materials temporarily stored on the surface will be managed to prevent impacts to surface water (Refer to Section 5 of the RSOP).
11	**Soil Movement or Relocation** Broomfield questions the applicability of the use and proposed definition of the term "area of contamination (AOC)." Per CERCLA/RCRA, an *AOC is an existing area of continuous contamination, such as a single RCRA unit (i.e. landfill) and associated plumes.* Clarify how movement from one AOC to another AOC is not considered placement. The broad interpretation of identifying an AOC as the equivalent of an Operable Unit (OU) is not consistent with the regulations. An Operable Unit is a grouping of Individual Hazardous Substance Sites (IHSS), whereas an AOC is an area of continuous contamination. Clearly the Industrial Area or the Buffer Zone Area is not one single area which contains continuous contamination. Broomfield does not intend to hinder any process at the Site, but does clearly question if movement of material from one AOC to another AOC is allowed and not considered placement to satisfy the CERCLA/RCRA criteria.	The May 14, 2001 Draft RSOP does not discuss or invoke the AOC concept. Based upon the State's adoption of the new broader definition of remediation waste, Section 2.3 of the RSOP states, "Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA LDRs." Remediation waste per 40 CFR §260.10 means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		within an OU without triggering LDRs. As described in the RSOP, only soil/asphalt with chemical constituents less than background or regulatory levels may be relocated to a different OU. The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile).
12	The City is concerned with the lack of information related to the volume of waste material that will be moved on the Site. We are continually being reassured that activities identified within the scope of the RSOP will only generate small quantities of waste material, yet there is a potential to generate large volumes. Broomfield is concerned that the document provides carte blanche to move material anywhere within a single OU. The City is adamant that the document be revised to identify maximum volumes that will be allowed for transport to other locations. The incorporation of an identified maximum volume prevents potential abuse of the RSOP.	The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP.
13	Broomfield is concerned with the statement *"asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations*	The May 14, 2001 Draft RSOP does not discuss or invoke the AOC concept. Based upon the State's adoption of the new broader definition of remediation waste, Section 2.3 of the RSOP states, "Asphalt and soil

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	within the same OU without triggering RCRA LDRs. " As previously mentioned, Broomfield does not consider an OU to be equivalent to an AOC. The criteria of relocating material to another PAC or Under Building Contamination (UBC) may also not be appropriate. The term "similar" is very broad and needs to be clarified. Broomfield questions how similar contamination types and/or concentrations can be determined without characterization data to provide numerical concentrations or identify specific analytes. To move material with similar contamination types can be construed to mean any volatile organic, any metal, or any semi-volatile organic within a specific Tier range. The commingling of soils with different analytes can be considered dilution, which is prohibited and could be considered treatment. The fourth criteria of evaluation for proposed relocation *is the potential to impact air or surface water* runoff. Groundwater is not addressed and the introduction of soils contaminated with organics may very well have a significant impact to groundwater. Finally, the sixth criterion for evaluation needs additional clarification *"Would relocation be cost prohibitive **(i**e. how much soil is involved in the relocation)?* " If the scope of the RSOP is to move small amounts of material, Broomfield does not understand how movement of soils can be cost prohibitive. The only assumption the City can derive is that the RSOP intends to move soils to large excavations and use the material as backfill. Clarify the cost statement to ensure there will be no opportunity to abuse the intent of the document.	covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA LDRs." Remediation waste per 40 CFR §260.10 means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs. As described in the RSOP, only soil/asphalt with chemical constituents less than background or regulatory levels may be relocated to a different OU. The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile) Groundwater is of concern if Potential Contaminants of Concern (PCOCs) in the groundwater migrate to and impact surface water. Section 5.3 of the RSOP addresses potential impacts to surface water and groundwater. In the Executive Summary and Section 2.3, the sixth criterion was revised as follows, "Would Relocation be economically justified (i.e., how much soil is involved in the relocation)?"

Shirley Garcia, City of Broomfield Comments on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
14	**Grandfathering of Material** Broomfield requests all statements be deleted which allude to *"asphalt and soil disturbed prior to the approval of this document, and awaiting disposition **may** be evaluated for management and disposition in accordance with the approved RSOP."* The City questions what material the Site will reevaluate, the quantities, and how the material is currently being managed. If the Site has any material currently awaiting approval of the RSOP and is not being managed per approved procedures, Broomfield can only assume the Site is allowing deviations from approved procedures. Broomfield questions how the material is being managed at the Building 440 site and has asked on many occasions for the analytical data of the material being stored east of Building 440. Again, we have been informed this RSOP deals with activities generating small quantities of material and the City requests a maximum volume be included in the scope and the body of the Asphalt and Soil Management RSOP.	The RFCA Parties disagree with the removal of this statement from the RSOP. The Building 440 site data package has been assembled and distributed to the City of Broomfield. The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP. An example of soil which has been staged and could be considered "grandfathered" exists immediately West of Building 371. The material was generated during installation of the East Dock in 1995 and consists of both soil and soil asphalt mix. Some of the soil has been used for a current security upgrade project in the immediate area, however, approximately 800 cubic yards remain at the location awaiting future re-use. The material is non-hazardous non-radioactive.

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
15	1 Page iv, Executive Summary, ¶ 1 Define why the Investigation Derived Waste (IDW) management methods are not being utilized in the RSOP. Has the Colorado Department of Health revised their IDW Management Policy? Some of the activities identified within the summary fall into the category of IDW.	Soil and sediment generated during environmental investigations is referred to as investigation-derived material (IDM) at RFETS. This RSOP includes the characterization and management of IDM generated at RFETS. RFCA defines action levels and interim cleanup levels for soil and sediment that are evaluated and/or remediated at RFETS. Consequently, it is consistent to apply soil and sediment levels to determine the characterization and management of IDM that will remain on site; the original determination of the action levels and interim cleanup levels includes an analysis of what is protective to human health and the environment. The State of Colorado has issued an Interim Final Policy and Guidance on Management of Investigation Derived Wastes at RCRA Facilities. Since it is guidance, facilities located within the State are not limited to the guidance and may propose different approaches to the State. This RSOP is that recommendation. If the State approves the RSOP, then the State accepts that the proposed approach is protective of human health and the environment.
16	2. Page iv, Executive Summary, ¶ 2 *Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) means approved protocols applicable to a set of routine environmental remediation and / or decommissioning activities regulated under this Agreement that DOE may repeat without re-obtaining approval after the initial approval because of the substantially similar nature of the work to be done. Initial approval of an RSOP will be accomplished through an IM/IRA process.* The City does not agree the activities identified within the Asphalt and Soil Management RSOP are within the scope of the RSOP definition. Per RFCA, there are three types of accelerated actions: a) Interim Measure/Interim Remedial Action, b) Proposed Action Memorandum (PAM), and c) RFCA Standard Operating Protocol (RSOP). The Asphalt and Soil Management RSOP scope address maintenance activities or IDW activities, which are not accelerated actions per	Due to the 2006 anticipated physical completion date, the RFCA Parties agree the use of an RSOP is the most beneficial, consistent and efficient method for managing asphalt and soil at the RFETS that requires disturbance prior to final cleanup decisions, regardless of why the soil has been disturbed. Since remedial actions at the RFETS will be completed within the next 5 years, it is prudent to apply the same criteria to all soil rather than making a distinction for one type of soil disturbance activity. The activities covered under this RSOP include maintenance activities, but handling and characterization of the soil is relevant to Environmental Restoration. While RSOPs may be utilized for accelerated actions, RFCA does not limit the use of RSOPs to accelerated actions, but includes “routine environmental remediation activities”.

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	RFCA.	The generation of Investigation Derived Material (IDM) is part of remedial activities. It is generated during characterization efforts to determine the nature and extent of contamination in order to select a remedy. Since IDM is the same material that will be evaluated and potentially remediated using RFCA criteria, it is consistent to apply the same criteria to the same soil source.
17	Delete the statement *"In addition to newly generated material, asphalt and soil disturbed prior to the approval of the RSOP may be re-evaluated for management and placement in accordance with this RSOP."* Broomfield is adamant that all work performed prior to approval of this RSOP should be dispositioned per the approved procedures utilized during the time of the activities. At several meetings, the City has voiced concerns about the disposition of soils generated during the Building 440 addition, which are currently being stockpiled. We have been reassured this material will not be managed per the A&S RSOP. Any material being generated prior to approval of this document should not be grandfathered. Broomfield has been reassured several times the scope of the RSOP deals with activities that only generate small volumes of waste.	Due to the 2006 anticipated physical completion date, the RFCA Parties agree the use of an RSOP is the most beneficial, consistent and efficient method for managing asphalt and soil at the RFETS that requires disturbance prior to final cleanup decisions, regardless of why the soil has been disturbed. Since remedial actions at the RFETS will be completed within the next 5 years, it is prudent to apply the same criteria to all soil rather than making a distinction for one type of soil disturbance activity. The activities covered under this RSOP include maintenance activities, but handling and characterization of the soil is relevant to Environmental Restoration. While RSOPs may be utilized for accelerated actions, RFCA does not limit the use of RSOPs to accelerated actions, but includes "routine environmental remediation activities". The generation of Investigation Derived Material (IDM) is part of remedial activities. It is generated during characterization efforts to determine the nature and extent of contamination in order to select a remedy. Since IDM is the same material that will be evaluated and potentially remediated using RFCA criteria, it is consistent to apply the same criteria to the same soil source.
18	3. Page iv, Executive Summary, ¶ 4 Add groundwater review to the process that determines net environmental impact to surface water and ecological resources.	Per RFCA, groundwater that impacts surface water is a factor in the consideration for environmental impacts. Groundwater is a concern if Potential Contaminants of Concern (PCOCs) in the groundwater can migrate to and impact surface water. Section 5.3 of the RSOP addresses potential impacts to surface water and groundwater.

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
19	4. Page iv, Executive Summary, ¶ 4 , #1 Broomfield does not agree an AOC is equivalent to an OU. Movement of contaminated material from one AOC to another AOC is considered placement. Explain why the Site does not consider relocation outside of an AOC placement.	The May 14, 2001 Draft RSOP does not discuss or invoke the AOC concept. Based upon the State's adoption of the new broader definition of remediation waste, Section 2.3 of the RSOP states, "Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA LDRs." Remediation waste per 40 CFR §260.10 means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs. As described in the RSOP, only soil/asphalt with chemical constituents less than background or regulatory levels may be relocated to a different OU. The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily replacing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. *Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile).*
20	5. Page iv, Executive Summary, ¶ 4, #6 Clarify how and when relocation of material will be cost prohibitive. If	Due to the 2006 anticipated physical completion date, the RFCA

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	the scope is dealing with small quantities of material, why is this criteria addressed? Broomfield along with other local governments have requested the document identify a maximum volume of material to be relocated within the RSOP to ensure the intent of the document is adhered to and is consistent with the purpose and scope. Add to the criteria: Statement as to why material has to be relocated.	Parties agree the use of an RSOP is the most beneficial, consistent and efficient method for managing asphalt and soil at the RFETS that requires disturbance prior to final cleanup decisions, regardless of why the soil has been disturbed and/or volume of soil generated. Since remedial actions at the RFETS will be completed within the next 5 years, it is prudent to apply the same criteria to all soil rather than making a distinction for one type of soil disturbance activity. The activities covered under this RSOP include maintenance activities, but handling and characterization of the soil is relevant to Environmental Restoration. While RSOPs may be utilized for accelerated actions, RFCA does not limit the use of RSOPs to accelerated actions, but includes "routine environmental remediation activities". The generation of Investigation Derived Material (IDM) is part of remedial activities. It is generated during characterization efforts to determine the nature and extent of contamination in order to select a remedy. Since IDM is the same material that will be evaluated and potentially remediated using RFCA criteria, it is consistent to apply the same criteria to the same soil source.
21	6. Page v, Table *Contaminant concentrations at or below back-ground or regulatory levels for asphalt* should be clarified. Define the process for determining at or below background levels for asphalt, especially chemical concentrations. *Contaminant concentrations below RFCA Tier II subsurface soil action levels for radionuclides and non-radionuclide chemicals* will have to be modified once the RSAL is approved. When the RSAL is approved, the document should state it will be revised to reflect a surface level for radionuclides and a subsurface level for non-radionuclide chemicals, or whichever is the most conservative. Clarify footnote 1, Will all asphalt be used as fill material? See general comments for asphalt action levels and address the City's questions and	The RSOP cannot be approved and used based upon proposed or pending modifications to the RFCA . If and when the RSALs are modified, the RSOP will be amended to incorporate any new action levels. Section 1.3 has been changed to clarify this point. Excavated materials temporarily stored on the surface will be managed to prevent impacts to surface water (Refer to Section 5 of the RSOP).

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	concerns. *Above RFCA Tier I subsurface soil action levels for radionuclides or non- radionuclide chemicals* does not address how the asphalt will be characterized if replaced into a container. The assumption is if the asphalt is above the radionuclide level, it will be packaged. Clarify how asphalt above Tier I chemical levels will be identified and characterized.	Characterization can be accomplished either using historical and / or process knowledge and / or sampling and analysis.
22	7. Page vi, ¶ 1 Clarify the term *"similar contamination types and concentrations." As* mentioned in the general statement, to move material with similar contamination types can be construed to mean any volatile organic, any metal, or any semi-volatile organic within a specific Tier range. Without analytical data, how can the Site determine the chemical concentration to determine similar receiving areas? The commingling of soils with different analytes can be considered dilution, which is prohibited and could be considered treatment. Broomfield questions the statement that material may be moved within the same OU without triggering RCRA land disposal restrictions (LDRs), yet material will be moved outside of AOCs. Broomfield does not agree an AOC is an OU.	Soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile). The Site would not introduce new contaminants to an uncontaminated area (i.e., move soil contaminated with radionuclides to an uncontaminated area or an area contaminated with volatiles). The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs. The RSOP does not invoke the AOC concept.
23	8. Page vi, ¶ 2 Revise the last sentence to read: "If the Radionuclide soils action levels change, this document will be reviewed and revised to represent the changed action levels for <u>surface contamination levels.</u>"	Excavated materials temporarily stored on the surface will be managed to prevent impacts to surface water (Refer to Section 5 of the RSOP). If, and when soil action levels are modified, the RSOP will be amended to incorporate any new action levels. See Section 1.3 of the RSOP.

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
24	9. Definition Section Add the following definitions to the RSOP: Action Levels, Investigative Derived Waste (IDW), Area of Contamination (AOC), Remediation Waste, Rocky Flats Cleanup Agreement (RFCA).	The terms "Action Levels", IDM, and "remediation waste" will be added to the definitions section of the RSOP. The terms, IDW and AOC are not utilized in the document.
25	10. Page 1, 1.1, Purpose, ¶ 1 Delete the last sentence of the paragraph. Broomfield does not want waste generated prior to the approval of this RSOP to be evaluated. See general comments regarding grandfathering of material. Provide the City with information pertaining to the volumes, sites, and management activities that are awaiting disposition at this time.	The RFCA Parties disagree with the removal of this statement from the RSOP. The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP.
26	11. Page 1, 1.1, Purpose, ¶ 6 See number 7 pertaining to review of <u>similar</u> constituents and concentrations.	Soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile). The Site would not introduce new contaminants to an uncontaminated area (i.e., move soil contaminated with radionuclides to an uncontaminated area or an area contaminated with volatiles). The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. . As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs.
27	12. Page 2, 1.1, Purpose Delete the last sentence of the paragraph. Placement of soil back into the excavation under this RSOP does not necessarily result in an efficient utilization of resources.	The RFCA Parties agree that the options for utilization of soil and asphalt in the manner described in this RSOP is an efficient utilization of resources. If the disturbed area contains soil with hazardous constituent concentrations greater than or equal to RFCA Tier I levels, such that after the disturbance, the remaining soil is believed to be below Tier I, then the soil disturbance permit Subject Matter Experts (SMEs) may decide to not allow the soil to be returned to the excavation site. The soil would be replaced into a container and actively managed in accordance with ARARs. In this instance, it would not be effective and protective to return soil to an area that may not require further remediation. This decision would be included in the evaluation conducted during the soil disturbance review and environmental checklist processes. The overarching principal of the RSOP is that the disposition of disturbed or excavated soil must be protective of human health and the environment and that soil disturbance is to be performed in a manner that causes no significant net environmental impact. If the soil above Tier I that had to be disturbed were causing an immediate threat to human health or the environment, then a remedial action should be taken sooner than later and the area would be high up on the ER Ranking list, such that an action would have already been taken or one

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		would be planned for the immediate future. If the area is not an immediate threat to human health or the environment, then waiting until ER activities reach that area should cause no more net environmental harm than if the soil had not been disturbed and returned to the environment. The RFCA Parties believe that this approach is an effective and protective intermediate remedy rather than adding clean soil to an area that will need further evaluation, and most likely remediation, in the future. Adding clean soil to this type of environment creates the possibility of cross-contaminating the clean soil that could cause the generation of even more remediation waste requiring offsite disposition.
28	13. Page 4, 2.1 Soil Disturbance Review Process, ¶ 2 To ensure subject matter expert (SME) review is performed adequately, the Environmental Checklist should be completed prior to initiation of the Integrated Work Control Package (IWCP). Change the word "may" to "shall" in the first sentence in the paragraph regarding the use of the Environmental Checklist. Please provide the City with a copy or boilerplate of the Environmental Checklist. Define how the review process captures beryllium contaminants.	Preparation of the EC is controlled by Site Procedure 1-25000-EPR-NEPA.001, Implementation of NEPA Documentation, to ensure it is applied consistently throughout the Site. Those projects that have the potential to impact the environment, require preparation of the EC. A boilerplate EC is included as Appendix A of the RFCA IGD (Appendix 3). The EC, IWCP, and project specific work control and health and safety documentation consider all potential contaminants.
29	14. Page 4, 2.2 Asphalt and Soil Management Decision, ¶ 1 Delete the entire paragraph. This paragraph has nothing to do with the scope and purpose of the RSOP.	This paragraph is intended to describe the land use assumptions for Site closure, and ensures consistency with the RFCA. This is an integral part of the RSOP. The text has been clarified to include reference to Figure 1 in Attachment 5 of the RFCA.
30	15. Page 4, 2.2. Asphalt and Soil Management Decision, ¶ 2 When sampling is conducted, it will be performed in accordance with Industrial Area (IA) or the Buffer Zone (BZ) Sampling and Analysis Plan (SAP), as appropriate. Clarify the term appropriate. Define the sampling process for the specified area using the SAPs if the addenda have not been completed for the identified areas. The IA SAP states	Based upon location, the appropriate Sampling and Analysis Plan (SAP) will be implemented. The SAPs contain all necessary information pertaining to sample collection and Data Quality Objectives (DQOs).

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	the addenda will be completed to determine the sampling criteria. Broomfield assumes if sampling is required, it will be bias sampling. Clarify that bias sampling will be used if required for activities associated with this RSOP. See # 13 related to the use of the Environmental Checklist.	
31	16. Page 5, 2.2, Asphalt and Soil Management Decision, ¶ l The RSOP states soil or asphalt awaiting analytical *results will be managed with caution in accordance with Best Management Practices (e.g., replaced onto plastic, and covered).* This section of the RSOP contradicts other sections of the document. Asphalt will not be sampled per other sections within the document. Clarify and add the potential best management practices to be utilized during <u>stockpiling of material on the surface.</u> **Define** the maximum amount of material to be stockpiled, the maximum timeframe to store material at the surface, density of plastic to be used, define the covers to be used, and the inspection requirements for the stockpile. Add contingency plans for potential impacts to surface water. Broomfield is concerned with the potential impact to surface water after a major storm event. Define the criteria for inspections of stockpiles after a major storm event, especially during off-normal working hours.	The RSOP states that "asphalt disturbances will be evaluated based solely upon process and historical knowledge and/or characterization of the surrounding soils….", this is due to the nature and composition of asphalt. Asphalt is derived from petroleum products and is composed of binders, aggregate, etc. Asphalt composition varies from supplier to supplier. As such, asphalt may in some cases require short-term stockpiling in order to obtain samples and analytical data from the surrounding soils. Best management practices are as described in the RSOP (*replaced onto plastic, and covered).* It has been noted in the RSOP that Best Management Practices will be utilized to manage soil stockpiles, including erosion control. These practices will include tarping, covering, or revegetation when necessary. The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP.
32	17. Page 5, Asphalt and Soil Management Decision, 1 The RSOP cites 6 CCR 1007-3, 264 for hazardous constituent concentrations. The citation should be 6 CCR 1007-3, 261. Cite the regulation for evaluating beryllium and asbestos.	The citation 6 CCR 1007-3, 264, has been revised to 6 CCR 1007-3, 261. RFCA provides action levels for Be. 10 CFR 850 does not apply, as it applies to removable beryllium contamination levels for the release of equipment. The regulation does not discuss Be in soil. Asbestos is not regulated under RCRA and does not apply to this RSOP.
33	18. Page 5, Asphalt and Soil Management Decision, Note See Broomfield's comments related to asphalt action levels in our general response section.	Asphalt will not be utilized as backfill for long-term solutions. Since asphalt itself is not a solid waste under Colorado law, asphalt "will be evaluated based upon process and/or historical knowledge of the surrounding soils related to contamination from a previous spill or release onto or under the asphalt. Due to the nature and composition of asphalt, it is impractical to establish "background" levels for chemical, metal, or radionuclide constituents in the asphalt matrix itself." Asphalt utilized as backfill on a temporary basis, may be recycled or removed and dispositioned off-site.
34	19. Page 5, Asphalt and Soil Management Decision Analysis The use of the "+" sign is confusing. If asphalt is to be used only as fill material at these locations, have the note follow "C" and state the following options are <u>only related to soils.</u> Broomfield has the following concerns with the management options process: • Movement of material within the OU may have the potential to move material outside of an AOC. • Without analytical data, movement of material within the same Tier levels cannot be assured and the potential to cross-contaminate material may be high and material equal to or exceeding Tier I may not	The RSOP has been revised for clarification. The reference will be replaced into a footnote. RSOP sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific management requirements will be identified during the soil disturbance review and environmental checklist processes. Closure of staging piles

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	be properly managed. • The term *"similar concentrations"* has to be clarified. The wording assumes any organic, metal, or radionuclide can be replaced at a different location where any organic, metal, or radionuclide contaminant type or concentration exists within the same tier range. See additional comments in the generic section titled "Soil Movement or Relocation." • Movement of material to other sites can appear to be an activity that dilutes the material. • Criteria for staging piles must be added to the RSOP. Identifying the ARAR associated with staging piles is insufficient, and Broomfield requests the detailed information to ensure protection of human health and the environment.	will be consistent with 6 CCR 1007-3. Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by the CDPHE is approval by the Director of the designation criteria and performance criteria. (It is not possible to designate a specific area, since that is unknown at this time.) As long as DOE follows the criteria identified in the RSOP, the process will work under RFCA. If DOE does not follow the criteria identified in the RSOP, then CDPHE, using the consultative process, can work with DOE until the criteria are being met or CDPHE may issue a stop work order. Soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile). The Site would not introduce new contaminants to an uncontaminated area (i.e., move soil contaminated with radionuclides to an uncontaminated area or an area contaminated with volatiles). The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions.

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
35	20. Page 7, 2.2 Asphalt and Soil Management Decision, last paragraph Change the last sentence to read: *"In each management and disposition option outlined above, the soil disturbance review process must determine that there is no significant environmental impact to surface water,* groundwater, *or ecological resources from the proposed replacement or put-back of asphalt or soil.*	Per RFCA, groundwater that impacts surface water is a factor in the consideration for environmental impacts. Groundwater is a concern if Potential Contaminants of Concern (PCOCs) in the groundwater can migrate to and impact surface water. Section 5.3 of the RSOP addresses potential impacts to surface water and groundwater.
36	21. Page 8, 2.3 Asphalt/Soil Movement Evaluation Criteria, ¶ 1 See # 7 regarding the use of the term similar contamination types and concentrations.	Soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile). The Site would not introduce new contaminants to an uncontaminated area (i.e., move soil contaminated with radionuclides to an uncontaminated area or an area contaminated with volatiles). The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. The soil and asphalt covered by this RSOP are defined as remediation waste. . As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs.
37	22. Page 8, 2.3 Asphalt/Soil Movement Evaluation Criteria, ¶ 1 Identify the group or individual that will ultimately determine the receiving site and evaluate the criteria for the soil relocation plan. Which document will record the evaluation process? Attach a boilerplate of the soil relocation plan to the RSOP. Provide the City with a copy of the boilerplate.	The K-H soil disturbance review committee will evaluate and determine if relocation of soil is acceptable and will designate the receiving site. The documentation will be maintained in the project file and will be summarized in the Annual HRR Update.

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
38	23. Page 8, 2.3 Asphalt/Soil Movement Evaluation Criteria **Criteria:** Add a maximum volume of material that will be allowed to be relocated to ensure material will not be stockpiled or used as backfill. Prior to initiating the evaluation of relocation, justification for request to relocate material shall be documented (reason why material has to be moved.) Bullet # 1 - The HRR will be used to determine relocation sites and currently identifies IHSS(s), PAC(s),UBC and their status related to current radionuclide Tier levels for surface and subsurface soils. Will the entire HRR be revised to reflect the new status once approved RSALs for surface and subsurface levels are approved? If the HRR is not revised, the potential to move material without similar concentrations will increase the possibility of cross-contamination and increased remediation costs. Bullet # 4 - Add groundwater to the bullet Bullet # 6 - Clarify how relocation could be cost prohibitive if the scope of the RSOP only addresses small volumes of material. Broomfield clearly wants to see an identified maximum volume of material within the scope of the RSOP to prevent abuse of the intent of the document. **Groups and Responsibilities:** Bullet #1 - The HRR Coordinator will determine a potential receiving site based upon the assessment of analytical data. If analytical data is a criterion for the movement evaluation, add this to the list of criteria. This statement contradicts the evaluation criteria. Include the minimum amount of information the HRR coordinator will document in the revised HRR (analytical data, volume of material,	Maximum volume cannot be determined. The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP. The HRR does not incorporate action levels designated by RFCA. The HRR documents known and potential release/spill sites, current characterization data and process knowledge. The RSOP has been revised include detail that the HRR will contain a summary of soil movements to include volume of material, origination and receiving sites, and contaminant types. Per RFCA, surface water impacted by ground water is a factor in the consideration for environmental impacts. Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s).

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	exact relocation of material, etc.). Bullet #2 - The review should also include compliance with RCRA and TSCA. Clarify how the Environmental Systems & Stewardship (ESS) group will address PCBs, beryllium, and asbestos.	CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. The decision process will be documented in the HRR, including a summary of soil movements (volume, origination and receiving sites, and contamination types). The assessment of analytical data is part of bullet #3, from the criteria, "After thorough review, are contaminant types and concentrations compatible for a relocation?"
39	24. Page 9, 2.3 Asphalt/Soil Movement Evaluation Criteria **Groups and Responsibilities:** 1st bullet on the page - How can the Radiological Engineer assess the relocation of material if some of the information within the HRR does not identify specific radiological data? 2nd bullet - The Remediation, Industrial D&D, and Site Services (RISS) Surface Water Group will assure that relocation complies with the Stormwater Pollution Prevention Plan (SWP3) and that all erosion controls are in place. Provide the methods used to prevent erosion and comply with SWP3. Broomfield has had concerns and comments related to erosion controls with D&D RSOPs. The Site's reply was that stakeholders would see specific measures identified in the Environmental Restoration RSOP's, which could indeed have an impact to surface water. Incorporate the potential erosion controls methods that will be implemented and how the Site will comply with SWP3.	Data must be provided to the Radiological Engineer prior to making a determination. The *Storm Water Pollution Prevention Plan* (*SWPPP*) provides a description of practices and measures to prevent contaminants from *entering* stormwater and *moving* to waterways. The Basic Principles of SWPPP are (though not exclusively): 1. Know what potential pollutants you have or use 2. Keep pollutants out of the "rain" and out of drainages 3. Keep your facilities clean and in good repair 4. Cleanup any leaks, spills, or releases promptly 5. Prevent runoff (and run-on) flows from moving pollutants 6. Manage runoff by settling, filtration, treatment, etc., as needed 7. Apply erosion controls where needed 8. Check regularly for potential "problems" 9. Evaluate your performance with monitoring 10. Report effectiveness to regulators In the case of "soil/asphalt piles", the following, generally applicable

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		guidelines for "storage" of potential polluting materials would apply: 1. Keep (potential) pollutants out of the "rain", if practical, and out of drainages 2. Prevent runoff (and run-on) flows from flushing/moving pollutants 3. Manage runoff by settling, filtration, treatment, etc., as needed 4. Check regularly for potential pollutant "problems" 5. Evaluate your performance by monitoring There are specific practices, measures, controls that could be utilized, which might include "soil glue" and/or berms/silt fences/wattles, and sedimentation basins. Covering, controlling storage location and runoff, and re-vegetation could also be utilized.
40	24. Page 9, Summary, ¶ 2 Define the storage practices that will prevent Radionuclide contamination of storm water. Revise the following sentence to state: *"Asphalt* and soil *contaminated with regulated constituents, and / or radionuclides will not be utilized as fill in or underneath a deep basement, cap or cover."* In addition, this section contradicts page 6 which states, *asphalt will only be used as fill material.* Delete the last sentence of the second paragraph. Asphalt should never be used as **fill** short-term and then be removed at a future date. This is double handling and is not cost effective. Broomfield requests short-term be defined by a specific time period.	This change has been incorporated. The statement on page 6 only applies to asphalt less than Tier I levels. Excavated materials temporarily stored on the surface will be managed to prevent impacts to surface water (Refer to Section 5 of the RSOP). Asphalt will not be utilized as backfill for long-term solutions. Since asphalt itself is not a solid waste under Colorado law, asphalt "will be evaluated based upon process and/or historical knowledge of the surrounding soils related to contamination from a previous spill or release onto or under the asphalt. Due to the nature and composition of asphalt, it is impractical to establish "background" levels for chemical, metal, or radionuclide constituents in the asphalt matrix itself." Asphalt utilized as backfill on a temporary basis, may be recycled or removed and dispositioned off-site.
41	25. Page 9, Summary, ¶ 4 Broomfield has voiced its concern with the use of the HRR as the method to identify staging piles on an annual basis. Once material is	The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	introduced into a staging pile, the storage requirement clock begins and notification of newly generated piles on an annual basis is unacceptable. Use of the RAP and its criteria should be identified in this document to capture the regulatory criteria, not the HRR. Define the process for tracking the time limits for staging piles and associated information. Identify the criteria for movement of material greater than Tier and all associated information. The RSOP states when material *is returned to a site, appropriate steps will be taken to ensure the soil is properly stabilized with the 2001 Annual Vegetation Management Plan.* Define the potential stabilization methods. Cite the section of the Vegetation Plan that addresses the stabilization methods to be used for the staging piles.	establishing a staging pile. Approval of the RSOP by the CDPHE is approval by the Director of the designation criteria and performance criteria. (It is not possible to designate a specific area, since that is unknown at this time.) As long as DOE follows the criteria identified in the RSOP, the process will work under RFCA. If DOE does not follow the criteria identified in the RSOP, then CDPHE, using the consultative process, can work with DOE until the criteria are being met or CDPHE may issue a stop work order. An RSOP is a RFCA Standard Operating Protocol – not a procedure. RSOP sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific management requirements will be identified during the soil disturbance review and environmental checklist processes. Closure of staging piles will be consistent with all other remediation decisions in the ER RSOP or other RFCA decision document. Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. A RAP is a special form of RCRA permit that an owner or operator may obtain instead of a permit issued under 270.3 through 270.66 to authorize the owner or operator to treat, store, or dispose of hazardous remediation waste (as defined in 260.10) at a remediation waste

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		management site (270.80). Under RFCA, separate permits are not required for activities related to removal or remedial actions in the Buffer Zone or remedial actions in the Industrial Area (RFCA paragraph 16a, d). Criteria that are required in a permit must be included in the RFCA decision document. This RSOP is the RFCA decision document that specifies the ARARs required for designation of staging piles. Therefore, neither a separate permit or RAP is required; the RSOP is the regulatory vehicle available for stakeholders to be involved in the development or input into the use of staging piles at RFETS. The "Reclamation and Revegetation" Section of the current Annual Vegetation Management Plan describes the seed mixture requirements for stabilization. The document has been revised to clarify that the most current version of the Annual Vegetation Management Plan will be utilized.
42	26. Page 10, Summary Explain how regulatory approval of the HRR updates constitutes designation of the staging pile, when the regulation states approval needs to be given prior to use of the piles. Broomfield requests written clarification on (v) and (vi) criteria and how the criteria will be met. (v) Define the evaluation process of hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases. Will the evaluation be performed on a case-by-case basis, or is the evaluation done site-wide? (vi) Define the potential for human and environmental exposure to potential releases from the unit. Provide a written explanation, which concludes the use of staging piles will reduce potential exposure to the environment and human health.	The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when using a staging pile. Approval of the RSOP by the Director is approval of the designation criteria and performance criteria. RSOP Sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific management requirements will be identified during the soil disturbance review and environmental checklist processes. Closure of staging piles will be consistent with all other remediation decisions in the ER RSOP or other RFCA decision document. Staging piles only apply to soils with hazardous constituents above

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	Clarify why §264. 554 (b), §264, 554 (c), §264, 554 (d) (1), etc. are not addressed in the RSOP and address why the criteria does not have to be met. Add all applicable parts of the regulation to the ARAR section. Add a section to the RSOP titled "Staging Piles" and define the criteria for use and management of staging piles, along with the regulatory drivers.	Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. Each staging pile site will differ, and the details for each site as required by 6CCR 1007-3, §264.554, will be included in the individual notification letters. Section 2.4 has been revised to address the requirements for staging piles. The RFCA Parties agree that sufficient detail is provided in Section 2.4 of the RSOP, and the State regulations.
43	27. Page 12, Table 3.1 Soil Movement/Placement Health and Safety Summary If excavations are large enough to meet OSHA requirements, should a shoring requirement be added to the column as a control? Workers will potentially be working in excavations and most excavations will not be backfilled until adequate characterization is completed.	If excavation depths and/or soil types are such that additional controls are required such as shoring or sloping, those requirements will be specified in the Health and Safety Plan (HASP), and/or Activity Hazard Analysis (AHA).
44	28. Page 14, 5.1 Soils and Geology Exposed soils that are stockpiled will have a high potential for erosion. A criterion for the management of stockpiles should include that the material be covered to prevent erosion and protect surface water. *"Contaminated asphalt will not be stockpiled."* This statement implies asphalt will always be replaced in an excavation. Broomfield does not want to see the Site become a disposal site for asphalt, especially if the	It has been noted in the RSOP that Best Management Practices will be utilized to manage soil stockpiles, including erosion control. These practices will include tarping, covering, or revegetation when necessary. Per the RSOP, asphalt is characterized typically utilizing historical and / or process knowledge. When possible, asphalt will be recycled, etc.

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	material is not adequately characterized. Per the RSOP, the asphalt will not be characterized. The assumption is the material will be characterized per information associated with an IHSS, PAC, or UBC.	Asphalt will not be utilized as backfill for long-term solutions. Since asphalt itself is not a solid waste under Colorado law, asphalt "will be evaluated based upon process and/or historical knowledge of the surrounding soils related to contamination from a previous spill or release onto or under the asphalt. Due to the nature and composition of asphalt, it is impractical to establish "background" levels for chemical, metal, or radionuclide constituents in the asphalt matrix itself." Asphalt utilized as backfill on a temporary basis, may be recycled or removed and dispositioned off-site.
45	29. Page 14-15, 5.2 Air Quality The pollutant most frequently generated from the activities defined in the RSOP will be dust. How will the Site measure the Colorado Air Quality Commission Regulation No. 1 if the Site intends to discontinue monitoring for PM_{10}.	There is no PM-10 monitoring requirement for fugitive particulate emission sources in Colorado Air Quality Control Commission Regulation Number 1. Compliance with Regulation Number 1, as it applies to fugitive particulate emission sources, is accomplished through dust control measures. The regulation states that if a project is emitting fugitive particulate emissions that exceed 20% opacity, or that is creating an off-site nuisance, then the owner or operator must submit a written fugitive emissions control plan to the CDPHE within 60 days. The 20% emission standard, no off property transport, and nuisance emission limitation guidelines of Regulation Number 1, as they apply to fugitive particulate emission sources, are not enforceable standards (Section D.1.e.ii). The RSOP has stated that "dust control measures will be evaluated and implemented on a project-specific basis."
	The document states, "a *0.1 mrem/yr EDE typically warrants regulatory agency notification, and monitoring will be conducted as needed. "* Broomfield would like to know when the decision is made to monitor for air quality or not to monitor. Define how beryllium will be monitored.	The 0.1 mrem/year uncontrolled emissions monitoring requirement applies to point sources. Air monitoring for fugitive emission sources is continuously conducted utilizing our Site radioactive ambient air monitoring program sampler network. Air monitoring is conducted in accordance with the RFCA Integrated Monitoring Plan. Airborne concentrations of beryllium in fugitive dust emissions will be quantified using an array of air samplers arranged predominantly downwind, with some upwind, of demolition activities on some selected buildings that have housed significant beryllium foundry and

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		machining processes. The samplers will be operated for the periods during which the structures are being demolished and debris or contaminated soil is being moved. The project action level will be derived from the beryllium NESHAP standard; i.e. the 30-day average concentration cannot exceed 0.01 ug/m^3. The action would be to curtail emissions to an extent necessary that project emissions will not cause an exceedance of that average concentration over any 30-day period.
	The last paragraph of this section contradicts the scope of the work identified in the RSOP. If the work is for small activities generating small quantities of material, why does the RSOP address areas of five acres or more? Delete the section related to areas of five acres or more and the discussion of an air conformity determination for PM_{10}. Broomfield again voices its concern that the RSOP does not identify maximum volumes of material that will be generated or moved within the scope of the document. The fact that the statement infers areas may be five acres or larger causes the City to question the intended use of the Asphalt and Soil Management RSOP.	The paragraph in question will be revised as follows; "An activity-specific environmental checklist will identify the scope of a given work effort and will be evaluated for air regulatory requirements, such as, Air Pollutant Emission Notices and Regulation Number 1 dust control measures." The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP.
46	30. Page 15, 5.4 Surface Water and Groundwater If asphalt is used as backfill, define the process to compact the material to prevent erosion around soils and subsidence of the area. This section addresses mitigation with soils and not asphalt. Define the process for	Asphalt will not be utilized as backfill for long-term solutions. Since asphalt itself is not a solid waste under Colorado law, asphalt "will be evaluated based upon process and/or historical knowledge of the

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	asphalt placement and the impacts to surface water and groundwater. What studies and/or modeling are being used to determine the impacts from the organics in the asphalt? In addition, define how the impacts are justified for asphalt when the Tier levels that were used were for soils.	surrounding soils related to contamination from a previous spill or release onto or under the asphalt. Due to the nature and composition of asphalt, it is impractical to establish "background" levels for chemical, metal, or radionuclide constituents in the asphalt matrix itself." Asphalt utilized as backfill on a temporary basis, may be recycled or removed and dispositioned off-site.
47	31. Page 20, Table 6.1 - ARARs Add all citations for staging pile criteria.	Section 2.4 has been revised to address the requirements for staging piles. An RSOP is a RFCA Standard Operating Protocol – not a procedure. RSOP sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific management requirements will be identified during the soil disturbance review and environmental checklist processes. Closure of staging piles will be consistent with 6CCR 1007-3. Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by the CDPHE is

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		approval by the Director of the designation criteria and performance criteria. (It is not possible to designate a specific area, since that is unknown at this time.) The use of liners and runoff/on controls will be evaluated on a case-bycase basis and will be implemented as required during the soil disturbance review and environmental checklist processes.
48	32. Page 23, 7.1 Implementation Schedule Add a sentence to include if a revision is made to the RSOP that both regulators and stakeholders will be informed of proposed changes to the RSOP. Broomfield has concerns with the following statement: *"In some cases, notification may follow the return of greater than Tier I soils to its point of generation due to delay times associated with receiving analytical results.* Broomfield assumed the purpose of stockpiling was to store material until analytical results were received and evaluated. The City does not perceive a situation when it is so critical to place soil back into the environment without adequate characterization. This action does not protect the environment, especially groundwater or surface water. The RSOP needs to clearly explain how material will be covered and the procedure which will include the type of material and how the covered material will be replaced into the excavation. If burrito bags are to be used, explain the process in the RSOP. The procedure lacks details and for the City to support the RSOP and its activities; we would like to see a section define the placement, management, and closure of the proposed staging piles.	If changes are made to the RSOP (once approved this can only be by field, minor or major modification), the regulators must be informed and may be required to approve the modification depending on the type. There is no formal requirement to notify the public although DOE can agree to do this. Modifications to approved decision documents are tracked in RFCA Attachment 12 and are also provided as information in the RFCA Quarterly Reports. In many instances the primary concern is wind-borne release of contaminants and not contamination to groundwater or surface water. In these instance it may be more practical to replace the soil into a staging pile at that point. Section 2.4 has been revised to address the requirements for staging piles. RSOP sections 2.2 (1)(D)(a) and 2.2(2)(D)(a) define when soil subject to the staging pile requirements may be returned to the environment, i.e., Soil containing hazardous constituents greater than or equal to RFCA Tier I levels may only be returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will be evaluated during future ER activities. Specific

Action-Specific Comments from the City of Broomfield on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		management requirements will be identified during the soil disturbance review and environmental checklist processes. Closure of staging piles will be consistent with all other remediation decisions in the ER RSOP or other RFCA decision document. Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated. The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by the CDPHE is approval by the Director of the designation criteria and performance criteria.
49	33. Page 23, 7.2 Administrative Record Delete the year (2001) associated with the Annual Vegetation Management Plan for RFETS. As the Vegetation Plan is revised, the most current document should become part of the Administrative Record. Any revision to erosion controls measures or methods will be automatically incorporated into the RSOP.	RSOP revised as proposed.

Comments from the Citizens Advisory Board on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
50	**Background** According to the Background Section (Section 1.2), the current procedures allow for the replacement of soils with concentrations of hazardous constituents (RCRA) greater than the RFCA Tier I levels. Soils with radioactive contaminants greater than RFCA Tier I levels cannot be returned to the excavation site and must be containerized. In all cases, investigation derived materials (samples and drill cuttings) cannot be returned to the environment if the soils exhibit the characteristics of a hazardous waste or contain concentrations above the preliminary remediation goals (10^{-6}). This RSOP proposes the option of returning all soils, including investigation-derived materials and radioactive soils, with concentrations greater than Tier I to the original location. In addition, this RSOP expands the range of options for managing the soils that contain concentrations below Tier II and the soils with concentrations between Tier II and Tier I levels. The RSOP proposes a unique option for these soils, to remove the soils from their original excavation point to another location, For soils greater than Tier II, but less than Tier I, the new location would have to exhibit similar contaminants with similar concentrations. For soils with hazardous concentrations below Tier II, the new location would only have to be located in the same OU, regardless of the type of contaminants and concentration. Radioactive soils, below Tier II levels, could be replaced in a new location with similar isotopic profile, regardless of concentration.	Current procedures **do not** allow for replacement of soils greater than Tier I. The RSOP states, "For soils with non-radionuclide chemical contamination, put-back levels are equivalent to a RFCA Tier I Industrial Use Action Level or a RFCA Tier I Open Space Use Action Level [unless some other Action Level Framework (ALF) provision prevents this]". The Background Section (Section 1.2) of the RSOP is provided to describe the primary management options for soil and asphalt at the Site today. The four options described are: 1) CERCLA remedial activities described under RFCA; 2) IDM management and disposition in accordance with Site standard operating procedures FO.23 and FO.29; 3) RCRA waste determination for soils generated from maintenance/construction activities; and 4) asphalt is characterized and managed on a case-by-case basis. The RSOP does propose this as an option to be considered only in the following instances (from Section 2.2), and only as a temporary measure until the returned soil and surrounding area is characterized and remediated (if necessary) during ER activities. If hazardous constituent concentrations are greater than or equal to RFCA Tier I levels: a. The soil may be: ➢ Returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will evaluated during future ER activities; or ➢ Replaced into a container and actively managed in accordance with the ARARs.

Comments from the Citizens Advisory Board on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		If radionuclide concentrations are equal to or above RFCA Tier I levels: a. The soil may be: ➢ Returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs (only if the soil also contains hazardous constituents above Tier I) and will be evaluated during future ER activities; or ➢ Replaced into a container and actively managed in accordance with the ARARs. In all cases (less than Tier II and/or between Tier I and Tier II), if soils are replaced to a new location, the soil profiles **must** be compatible (i.e., the new location must contain similar chemical and/or isotopic profile). The table provided on Page v of the Executive Summary describes the appropriate requirements.
51	1. It appears this RSOP is attempting to circumvent the RCRA land disposal restriction (LDR) rules which require the treatment of remediation soils to significantly reduce the total constituent concentrations (i.e. by as much as 90%) before the soils can be "replaced" into the environment. Any movement of contaminated soils (above the LDR levels) from one "area of contamination" (AOC) to another is considered "placement." The RSOP suggests that the Industrial Area (or Buffer Zone) as a whole is equivalent to an AOC. The RSOP's implied interpretation of AOC does not meet the definition provided in CERCLA/RCRA, where an AOC is an existing area of continuous contamination, such as a single RCRA unit (i.e. landfill) and associated plumes. The classification of the entire Industrial Area (or Buffer Zone) as one AOC is overly broad and misleading, This misapplication of the AOC concept could constitute unlawful disposal of hazardous waste (EPA letter to N. Nosonchuck, March 25, 1996) Note: The RCRA LDR rules apply to hazardous	The May 14, 2001 Draft RSOP does not discuss or invoke the AOC concept. Based upon the State's adoption of the new broader definition of remediation waste, Section 2.3 of the RSOP states, "Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA LDRs." Remediation waste per 40 CFR §260.10 means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations

Comments from the Citizens Advisory Board on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	constituents and mixed (radioactive) hazardous constituents.	within an OU without triggering LDRs. As described in the RSOP, only soil/asphalt with chemical constituents less than background or regulatory levels may be relocated to a different OU. The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. *Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile).*
52	2. The comingling of soils is a great concern. The movement of soils with concentrations below Tier II levels to areas with contaminants of higher concentrations could result in a dilution effect of the contaminated soils. Likewise, the dilution effect could occur in areas where subsurface soils are returned to the same location at the surface, where concentrations are much higher. The dilution principle is recognized in RCRA as a form of abuse (avoiding treatment standards) and is strictly prohibited in most cases. Commingling of soils could also result in the generation of waste by contaminating soils with different contaminants or different concentrations. The board requests language in the RSOP limiting the use of the options to transport soils with concentrations less than Tier I levels from one AOC to another. Soils should not be replaced in areas with different contaminants. In addition, this option should not be available to replace large quantities of soil, unless the LDR requirements are met. A Description of the criteria used to determine how options are selected would be helpful in Section 2.	The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile). Section 2 presently describes that the soil populations less than Tier II and/or less than Tier I and greater than Tier II may only be relocated to areas with similar chemical and/or isotopic profiles. Remediation waste may be moved within OUs without triggering LDRs.

Comments from the Citizens Advisory Board on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
53	3. The RSOP references the RFCA Tier I and Tier II Industrial Use Action Level and the Tier I and Tier II Open Space Use Action Level (See RFCA, Attachment 5). The Action Level Framework (ALF) provides soil action levels for surface and subsurface soils. The RFCA parties anticipate the RFCA document will be modified, amended or replaced, once new surface and subsurface soil action levels for radionuclides are finalized. The board is concerned that the revised subsurface soil action levels will be used as the threshold levels for evaluating options per this RSOP. The board is concerned that subsurface soil action levels will be significantly less conservative than surface soil action levels. Possibly, the subsurface Tier II level could be higher than the surface soil Tier I level. The board requests clarifying language in the RSOP limiting the Tier I and Tier II threshold soil action levels for radionuclides to surface soil action levels only.	The RSOP cannot be approved and used based upon proposed or pending modifications to the RFCA . If and when the RSALs are modified, the RSOP will be amended to incorporate any new action levels. Section 1.3 has been changed to clarify this point. Excavated materials temporarily stored on the surface will be managed to prevent impacts to surface water (Refer to Section 5 of the RSOP).

Comments from the Citizens Advisory Board on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
54	4. The board is concerned that areas where soil disturbances have already occurred and where action has been taken, will be "grandfathered" into this RSOP. For example, at two waste disposal trenches, T- 3 and T-4, contaminated soils were excavated, treated, and replaced in 1996. Radioactive soils were segregated. At that time, the regulatory agencies established temporary standard for the amount of radioactivity that could be replaced into the trenches. Using these temporary standards, the regulators approved replacing the soil. The regulators approved final standards in the RFCA in the fall of 1996 and agreed to re-evaluate the trenches at a later date, if necessary. The board requests clarifying language in the RSOP limiting the applicability of the RSOP to current and future soil disturbances, excluding the T-3 and T-4 soils and other similarly contaminated sites.	The soils replaced in 1996 were part of a remedial action, this RSOP does not apply to soils covered by past, current or future remediation projects. The RSOP executive summary states, "This RSOP does not replace accelerated action decision documents required to perform Resource Conservation and Recovery Act corrective actions, environmental restoration or decontamination and decommissioning projects." An example of soil which has been staged and could be considered "grandfathered" exists immediately West of Building 371. The material was generated during installation of the East Dock in 1995 and consists of both soil and soil asphalt mix. Some of the soil has been used for a current security upgrade project in the immediate area, however, approximately 800 cubic yards remain at the location awaiting future re-use. The material is non-hazardous non-radioactive.
55	5. The definitions of staging piles and stockpiles are confusing. The only difference between the two forms of temporary storage appears to be the requirement that stockpiles are managed with tarps. Thus, the RSOP implies that staging piles do not have to be similarly managed. However, RCRA 40 CFR 264.554(d)(1) requires that the staging pile must be designed to prevent or minimize the releases of hazardous wastes into the environment and to minimize or adequately control cross media transfer (i.e. through the use of lines, covers, run-on/run-off controls). The board requests language describing exactly how stockpiles will be managed to protect the environment through the use of run-on/run-off controls, covers, liners, etc.	The requirements for stockpiles are discussed in Section 2.4 of the RSOP. A soil stockpile as described in this RSOP is the non-regulated temporary short-term storage of asphalt/soil in a managed pile (e.g., covered with tarps) above grade, until analytical results and/or characterization and disposition is determined. A Staging Pile as defined in 6CCR 1007-3, §264.554, is an accumulation of solid non-flowing remediation waste that is not a containment building and is used only during remedial operations for temporary storage at a facility. Staging Piles will only be utilized when chemical constituents exceed the Tier I Levels. A staging pile (§264.554) will allow consolidation of remediation waste into the pile without triggering RCRA LDRs and will be designated by the State. The use of liners and runoff/on controls will be evaluated on a case-bycase basis and will be implemented as required during the soil disturbance review and environmental checklist processes.

Comments from the Citizens Advisory Board on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		The LDRs (which appear in 40 CFR part 268) generally prohibit land disposal (or ``placement'' in land-based units) of hazardous wastes until the wastes have met the applicable treatment standards. LDRs apply to remediation waste that will be dispositioned offsite. The staging pile provisions allow temporary storage and accumulation of remediation wastes in a staging pile without being subject to LDRs. The staging piles provisions allow the Director to determine appropriate design criteria for the staging pile based on the site- specific circumstances such as the concentration of the wastes to be replaced in the unit and the length of time the unit will operate.

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
56	New Construction: Page 1 under purpose states that "As part of Site closure activities, asphalt and soil will be disturbed for various reasons, such as investigational drilling; excess sample material; well and borehole sampling and installation, construction and maintenance activities including cleaning of ditches and culverts, utility line repairs, power pole replacements." The RFCA definition for the purpose of an RSOP indicates that it covers routine environmental and/or decommissioning activities. Construction does not seem to fit with this definition. Construction at Rocky Flats cannot be described as routine given the fact that there is a high probability that soils excavated in the Industrial Area will contain radionuclide and hazardous material contamination, Westminster does not support leaving the word "construction" in the definition of uses for this RSOP. Any removal of soil required for construction should be reviewed in a separate document due to the volumes of dirt that may be removed and the protection required from resuspension and erosion, etc. Construction, for the purposes of those comments, applies to large areas such as the new building that is under construction for TRU waste handling and shipment.	Due to the 2006 anticipated physical completion date, the RFCA Parties agree the use of an RSOP is the most beneficial, consistent and efficient method for managing asphalt and soil at the RFETS that requires disturbance prior to final cleanup decisions, regardless of why the soil has been disturbed. Since remedial actions at the RFETS will be completed within the next 5 years, it is prudent to apply the same criteria to all soil rather than making a distinction for one type of soil disturbance activity. The activities covered under this RSOP include maintenance activities, but handling and characterization of the soil is relevant to Environmental Restoration. While RSOPs may be utilized for accelerated actions, RFCA does not limit the use of RSOPs to accelerated actions, but includes "routine environmental remediation activities". The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP.
57	Definition of Remediation: Westminster also questions how the actions covered in this RSOP can be defined as remediation. The RFCA interprets remediation to mean "all solid, hazardous and mixed wastes; all media and debris that contain hazardous substances, listed	Based upon the State's adoption of the new broader definition of remediation waste, Section 2.3 of the RSOP states, "Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	hazardous mixed wastes or that exhibit a hazardous characteristic and all hazardous substances generated from activities regulated in this Agreement as RCRA corrective action or CERCLA response actions including decommissioning. Remediation waste does not include wastes generated from other activities." However, Section 2.3 entitled Asphalt/Soil Movement Evaluation Criteria, page 8, states that asphalt and soil covered by this RSOP are considered remediation wastes and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA LDR's. This statement is in conflict with the, Executive Summary which states that the purpose of this RSOP is to streamline in a single decision document, a compliant and environmentally protective routine approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup actions.	concentrations within the same OU without triggering RCRA LDRs." Remediation waste per 40 CFR §260.10 means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs. As described in the RSOP, only soil/asphalt with chemical constituents less than background or regulatory levels may be relocated to a different OU. The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. *Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile).*
58	Grandfather Clause- The Executive Summary states that "in addition to newly generated material, asphalt and soil disturbed prior to the approval of this RSOP may be, re-evaluated for management and placement in accordance with this RSOP." Also, page 2, last sentence States that "Soil and asphalt generated or disturbed prior to the approval of this RFCA Standard Operating Protocol (RSOP) may be re-evaluaded for management and disposition in accordance with approved RSOP." These statements appear to "grandfather" previous	The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume.

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	soil placements. Of particular concern is the large stockpile of dirt excavated for the new waste handling facility near building 440, and the soil that were replaced in the excavation of Trenches T3/T4. Both of these excavations must be reviewed individually for placement/removal and should not be grandfathered in under this RSOP.	The number of requests for asphalt/soil disturbance at the Site vary from year to year, and can range from 50-150 requests per year. The majority of the requests are small volume generated from utility and sewer line repair projects. As we move towards Site Closure, projects generating large volumes of soil will cease, other than for remediation activities, which are not covered by this RSOP. An example of soil which has been staged and could be considered "grandfathered" exists immediately West of Building 371. The material was generated during installation of the East Dock in 1995 and consists of both soil and soil asphalt mix. Some of the soil has been used for a current security upgrade project in the immediate area, however, approximately 800 cubic yards remain at the location awaiting future re-use. The material is non-hazardous non-radioactive.
59	Soil Volume: The draft RSOP does not discuss the volume of soil, nor set a limit to the amount of soil that is to be excavated for investigational drilling, excess sample material, borehole sampling and installation. The document does not discuss protection for the pile while awaiting disposition. Any soils left in the open waiting disposition must have a surfactant applied in order to reduce resuspension of soil during high wind and to limit erosion during storm events.	The Site envisions this RSOP will routinely cover only small quantities of soil/asphalt. However, in some instances, as with the Bldg. 440 expansion project, the soil volumes could be large. The RFCA Parties do not make a distinction regarding the volume of soil potentially covered by this RSOP. The approach and methodology are consistent and environmentally protective with Site Closure, regardless of why the soil is excavated or disturbed. There is no regulatory reason or practical justification for establishing a maximum volume. The use of liners and runoff/on controls will be evaluated on a case-bycase basis and will be implemented as required during the soil disturbance review and environmental checklist processes.
60	Conflict with RFCA- The chart on page v indicates how asphalt and soil will be managed and appears to be in conflict with RFCA. Attachment 5, page 5-2 of the RFCA discusses soil put back levels. Section D of the draft RSOP indicates that soils above RFCA Tier I subsurface soil action levels for radionuclides may be returned to the excavation or disturbance site from which it originated to be evaluated	The RSOP does propose this as an option to be considered only in the following instances (from Section 2.2), and only as a temporary measure until the returned soil and surrounding area is characterized and remediated (if necessary) during ER activities. If hazardous constituent concentrations are greater than or equal to

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	during future ER activities RFCA states that "Soils with radionuclide levels below Tier II may be replaced; soils contains radionuclide levels above Tier I may not be replaced. Decisions regarding soils containing radionuclide levels between Tier I and Tier II will be determined on a case by case basis. Westminster believes that the RFCA will have to be amended if the RFCA parties approve this RSOP. Please provide information as to how this RSOP is in compliance with the definitions of tiers contained within RFCA.	RFCA Tier I levels: b. The soil may be: ➢ Returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs and will evaluated during future ER activities; or ➢ Replaced into a container and actively managed in accordance with the ARARs. If radionuclide concentrations are equal to or above RFCA Tier I levels: b. The soil may be: ➢ Returned to the excavation or disturbance site from which it originated in accordance with the staging pile ARARs (only if the soil also contains hazardous constituents above Tier I) and will be evaluated during future ER activities; or ➢ Replaced into a container and actively managed in accordance with the ARARs. In all cases (less than Tier II and/or between Tier I and Tier II), if soils are replaced to a new location, the soil profiles **must** be compatible (i.e., the new location must contain similar chemical and/or isotopic profile). The table provided on Page v of the Executive Summary describes the appropriate requirements.
61	Discrepancy in Definition: Attachment A-1, Supplemental Information Associated with EPA Policies and Regulations Governing the Management of Remediation Waste Under the Resource Conservation and Recovery Act (RCRA) defines an Area of Concern as "an existing area of continuous contamination of varying amounts	The May 14, 2001 Draft RSOP does not discuss or invoke the AOC concept. Based upon the State's adoption of the new broader definition of remediation waste, Section 2.3 of the RSOP states, "Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	and types. AOCs are identified on a case-by- case basis and are delineated by the extent of continuous contamination (e.g. waste pit and the surrounding contaminated ground water is one AOC and may be viewed as a single unit)." Page 3, Section 2.1 of the draft RSOP, Soil Disturbance Permit Process, third paragraph indicates that movement of soil from one contaminated area to another of equal contamination is allowed in principle under this RSOP. It appears that the RSOP does not meet the intent of the regulation nor the definition of an AOC. Please provide justification for the RSOP interpretation of the definition of an AOC.	concentrations within the same OU without triggering RCRA LDRs." Remediation waste per 40 CFR §260.10 means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. As such, CERCLA and RCRA corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs. As described in the RSOP, only soil/asphalt with chemical constituents less than background or regulatory levels may be relocated to a different OU. *Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile).*
62	Land Disposal Regulations: The Supplemental Information Associated with EPA Polices and Regulations Governing the Management of Remediation Waste under RCRA, Attachment A-1, states that "remediation wastes that contain listed hazardous waste or which exhibit a hazardous waste characteristic are not required to meet land disposal restrictions provided management of the restricted waste does not constitute placement." Under CERCLA "placement" into an AOC does not occur if the wastes are moved within an AOC, left or treated in place or consolidated within the AOC from which they were extracted." Please provide information to the City as to why the temporary disposal action in the draft RSOP does not constitute placement.	The May 14, 2001 Draft RSOP does not discuss or invoke the AOC concept. Based upon the State's adoption of the new broader definition of remediation waste, Section 2.3 of the RSOP states, "Asphalt and soil covered by this RSOP are considered remediation waste and may be moved to receiving areas of similar contamination types and concentrations within the same OU without triggering RCRA LDRs." Remediation waste per 40 CFR §260.10 means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous wastes or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. The soil and asphalt covered by this RSOP are covered by this definition of remediation waste. As such, CERCLA and RCRA

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
		corrective action authorities allow remediation waste to be moved to receiving areas of similar contamination types and concentrations within an OU without triggering LDRs. As described in the RSOP, only soil/asphalt with chemical constituents less than background or regulatory levels may be relocated to a different OU. The intent of replacing soils to a different location is not to dilute or change in any way the soil contaminant profile or make-up in areas at the Site. The RSOP was written to streamline into a single document, the approach for managing and temporarily placing disturbed asphalt and soil at Rocky Flats prior to final cleanup decisions. *Additionally, as discussed above, soils may **only** be relocated to areas with compatible soils (i.e., with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile).*
63	Stockpiling versus Staging: The draft document for Asphalt and Soil management provides for the use of stockpiles and staging piles. Attachment A-18 of the Supplemental Information Associated with EPA Policies and Regulations Governing the Management of Remediation Waste under RCRA- Relevance to Cleanup Activities/Processes, under the section entitled "Use of Staging Piles for Temporary Storage of Solid, Non Flowing Remediation Waste," discusses only the use of staging plies not stockpiles, and indicates that "staging piles are intended to allow remediation wastes to be temporarily stored on-site. Designation of staging piles and staging pile operating term extensions is expected to most often be part of the approval of remedy selection at a site. Therefore, like selection of the remedy, staging piles will generally be approved using Class 2 permit modification procedures." Stockpiling of soil and asphalt is not covered by the regulations. Although according to the RSOP a staging pile is for temporary	The requirements for stockpiles are discussed in Section 2.4 of the RSOP. A soil stockpile as described in this RSOP is the non-regulated temporary short-term storage of asphalt/soil in a managed pile (e.g., covered with tarps) above grade, until analytical results and/or characterization and disposition is determined. A Staging Pile as defined in 6CCR 1007-3, §264.554, is an accumulation of solid non-flowing remediation waste that is not a containment building and is used only during remedial operations for temporary storage at a facility. Staging Piles will only be utilized when chemical constituents exceed the Tier I Levels. A staging pile (§264.554) will allow consolidation of remediation waste into the pile without triggering RCRA LDRs and will be designated by the State. It is important to note that staging piles are only proposed to be implemented where hazardous constituent concentrations are greater than or equal to RFCA Tier I levels and that the soil may only be

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
	storage at a facility and a stockpile is for temporary short-term storage (covered with a tarp). Please provide the City with a definition for temporary short-term versus temporary in view of time limits assigned to a staging pile. The City believes that since staging piles have criteria attached to them, that stockpiles should also have similar criteria. Please review the staging pile criteria listed below and include a statement of similar limitations and protective measures for stockpiles and add this criteria to the draft RSOP. 1. Performance Standards for staging pile are contained in 40 CFR 264.552(d)(1). The pile must facilitate a reliable, effective and protective remedy. The staging pile must be designed so as to prevent or minimize releases of hazardous wastes and hazardous constituents into the environment and minimize or adequately control cross-media transfer, as necessary to protect human health and the environment (for example through the use of liners, covers, run-off/run-on controls, as appropriate). The staging pile must not operate for more than two years. The two year limit begins from the first time remediation waste is put into a staging pile. 4. Other considerations that must be addressed: Volume of wastes to be stored Physical and chemical characteristics of the wastes Potential for releases from the pile Hydrogeological and relevant environmental conditions which may influence the migration of any potential releases Potential for human and environmental exposure to potential releases from the unit	returned to the original excavation or disturbance site. The use of liners and runoff/on controls will be evaluated on a case-bycase basis and will be implemented as required during the soil disturbance review and environmental checklist processes. The LDRs (which appear in 40 CFR part 268) generally prohibit land disposal (or ``placement'' in land-based units) of hazardous wastes until the wastes have met the applicable treatment standards. LDRs apply to remediation waste that will be dispositioned offsite. The staging pile provisions allow temporary storage and accumulation of remediation wastes in a staging pile without being subject to LDRs. The staging piles provisions allow the Director to determine appropriate design criteria for the staging pile based on the site- specific circumstances such as the concentration of the wastes to be replaced in the unit and the length of time the unit will operate. The RSOP identifies the criteria of when and where a staging pile may be used and the performance criteria that must be followed when establishing a staging pile. Approval of the RSOP by CDPHE is approval by the Director of the designation criteria and performance criteria. (Section 2.4). Staging piles only apply to soils with hazardous constituents above Tier I. For these soils, a separate notification to the regulatory agencies will be made at the time they are created, in addition to placing the Soil Disturbance Review documentation, in the administrative record. The notification serves as a request for designation of the staging pile(s). CDPHE approval is required prior to designation and use of a staging pile. Section 2.4 of the RSOP has been revised to clarify this process. The annual HRR update will provide a summary of the staging piles previously designated.

Comments from the City of Westminster on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
Comment #	**Comment**	**Response**
64	Information Management: The draft document does not mention GIS mapping of placement of wastes within OUs. This information is important for future environmental remediation and also long-term stewardship. Please provide a statement in the RSOP that complete records will be kept on any soils moved within an OU. The records will indicate at a minimum, volume of soil moved, where it was removed from and purpose for the removal, constituents (attach analysis information), and date of placement. The area of removal and placement will be properly annotated on an attached map and the information inputted into a GIS System.	The HRR will serve as the record. The decision process will be documented in the HRR, including a summary of soil movements (volume, origination and receiving sites, and contamination types).

Comments from the U.S. Environmental Protection Agency on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
65	Add a section that briefly explains the differences between staging piles and stockpiles. Include the rationale behind the use of each, as well as timeframes, protective measures, and concentrations of contaminants that would go into the piles. Besides a separate section, information about staging piles and stockpiles should be added to the table that is provided in the Executive Summary.	Two changes have been incorporated into the Asphalt and Soil Management RSOP which provide the necessary detail for staging piles, including timeframes, protective measures, contaminant concentrations, staging pile designation and approval. Section 2.4, page 10 has been rewritten, and the definition for "staging pile" provided in the Definitions Section of the RSOP has been clarified. A Summary of the changes is also provided below:

	Application	**Duration**	**Protective Measures**	**Rationale**
Soil stockpile	Operational stockpiles used for all soils during work activity. Soils < Tier II may remain in stockpile post completion of work on a case by case basis.	No regulatory requirement or limit	Best Management Practices (e.g., placed on plastic and covered with tarps), as determined by location and expected contaminants	Utilized for temporary short-term storage of soil or asphalt during work activities in order to review existing analytical data/process knowledge, or until analytical results and/or final characterization and disposition is determined.
Staging pile	Soils containing hazardous constituents > Tier I managed for approx. 2 years in at original excavation site pending final remediation.	In general, the operating term is 2 years.	Best Management Practices as described above and in accordance with 6 CCR 1007-3 § 264.555 (d) (2)	Must be designated by the CDPHE, and utilized for the temporary staging of soils with constituents greater than Tier I, and subject to further action.

In both instances, it may be advantageous to return contaminated soils to the excavation from which they originated, in lieu of utilizing clean fill and creating additional contaminated soil. Protective measures will be utilized to prevent migration of contaminants from the pile.

Comments from the U.S. Environmental Protection Agency on the RSOP for Asphalt and Soil Management, Revision 2, dated May 14, 2001		
66	Provide a better description of the criteria that will be used in determining that soils have "similar" contaminants or concentrations of contaminants.	Section 2.3 of the RSOP was revised to clarify this point (i.e., "with similar concentrations of the same type of constituents, containing similar chemical and/or isotopic profile"). Further examples of this strategy are as follows: • Soil with radiological constituents exceeding Tier II levels would not be relocated to an area with known chemical and/or heavy metal contamination exceeding Site background levels. In this case, the resulting mixture of the soils could create a mixed waste. • Soil containing hazardous constituents approaching Tier I, would not be relocated to an area with contamination levels less than Tier II. • In all cases, each and every sending and receiving site will be evaluated utilizing the available process knowledge and/or analytical data prior to making a management decision. Soil/asphalt contaminants (i.e., metals, organics, etc.), concentrations of the contaminants, worker and public health and safety, and ultimate disposition of the material must all be considered.
67	For tracking purposes, the movement and characteristics of soils and asphalt that are subject to this RSOP should be input to the data management system that is currently being developed for the upcoming remedial work.	The RFCA parties agree that the movement and characteristics of soil and asphalt subject to this RSOP requires "tracking". As described in Section 7.1 of the RSOP, an appropriate site database, as well as the Historical Release Report Annual Updates will be utilized to document and track asphalt/soil characterization, and relocation. Specifically, the recently developed Environmental Restoration (ER) Remedial Action Decision Management System (RADMS) database will be utilized to track soil movement, analytical data, etc. This information will then be reformatted for inclusion into the annual HRR updates as text.